# SR 532 Route Development Plan

## MP 0.00 (Junction with East Camano Drive)
## to
## MP 10.09 (Junction with I-5)

*Prepared for*

**Washington State Department of Transportation**
**Northwest Region**
15700 Dayton Avenue North
Seattle, Washington 98133-9710

*Prepared by*

**Parametrix**
1231 Fryar Avenue
P.O. Box 460
Sumner, Washington 98390-1516
(253) 863-5128
www.parametrix.com

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## CERTIFICATE OF ENGINEER

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Prepared by J. Howard Roll, P.E.

Checked by Cynthia M. Clark, P.E.

Approved by Mujib Ahmed, P.E.

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# ACRONYMS

| | |
|---|---|
| AADT | Average Annual Daily Traffic |
| ACR | Annual **A**verage Daily Traffic to Peak Hour **C**apacity **R**atio |
| ADT | Average Daily Traffic |
| BNSF | Burlington Northern Santa Fe |
| CRAB | County Road Administration Board |
| ESA | Endangered Species Act |
| FGTS | Freight and Goods Transportation System |
| GMA | Growth Management Act |
| HAC | High Accident Corridor |
| HAL | Hazardous Accident Location |
| HCM | *Highway Capacity Manual* |
| HOV | High-occupancy vehicle |
| HSP | Highway System Plan |
| LOS | Level of Service |
| MP | Milepost |
| MVET | Motor Vehicle Excise Tax |
| non-HSS | Non-highway of Statewide Significance |
| RCW | Revised Code of Washington |
| RDP | Route Development Plan |
| ROW | Right-of-way |
| SC & DI | Surveillance Control and Driver Information Systems |
| SEPA | State Environmental Policy Act |
| SPL | Signal Priority List |
| SR 532 | State Route 532 |

## ACRONYMS (Continued)

| | |
|---|---|
| TDM | Travel Demand Management |
| TEA-21 | Transportation Equity Act for the 21st Century |
| TIB | Transportation Improvement Board |
| TIF | Traffic Impact Fees |
| TSM | Transportation Systems Management |
| WAC | Washington Administrative Code |
| WSDOT | Washington State Department of Transportation |
| WTP | Washington Transportation Plan |

# 1. INTRODUCTION AND EXECUTIVE SUMMARY

## 1.1 INTRODUCTION

Washington State Department of Transportation (WSDOT), as a part of ongoing planning for state highways, establishes and periodically updates Route Development Plans (RDPs) for all state routes. The RDP for State Route 532 (SR 532)was initiated in the mid-1990s, and the October 1995 draft report was finalized but not adopted.

This RDP covers the entire length of SR 532 from milepost (MP) 0.00 on Camano Island in Island County to MP 10.09 at the interchange with Interstate 5 (I-5) in Snohomish County. About one-third of the route exists in Island County, with the remaining two-thirds in Snohomish County. Relevant background information from the October 1995 draft report has been incorporated and supplemented with updated traffic data. In addition, the report organization has been revised to follow WSDOT's RDP outline.

RDPs are intended to identify deficiencies and potential solutions that take into account existing and projected traffic operations, safety and capacity issues, environmental issues, projected land use, future right-of-way (ROW) needs and constraints, and other planning issues relevant for the state highways. The SR 532 RDP is based on analysis of future travel demand projections for the corridor that were in turn based on traffic growth factors developed by WSDOT. Potential improvements and improvement strategies were developed, evaluated, and refined by a Steering Committee, resulting in the preferred alternative documented in this plan. A list of the Steering Committee members and meeting minutes are included in Appendix A.

When approved, this RDP will provide:

- Guidance for regional and local decision-makers regarding future projects on and along SR 532.
- Direction for determining measures to mitigate the impacts of future development along the highway.
- Recommendations for transportation capacity and safety improvements and strategies, and a basis for including them in the State Highway System Plan.
- An opportunity for stakeholders to provide input into the future development of the corridor, and a reflection of stakeholder input collected.
- Access management recommendations for the corridor.
- Identification of existing and future right-of-way needs for the preferred alternative to support corridor preservation.

The SR 532 RDP is intended to support local work conducted to meet the requirements of the Growth Management Act (GMA). WSDOT will work with local agencies to coordinate transportation improvements and land development as the local agencies develop and update their capital facilities planning. Recommended improvements are organized into interim and long-term improvements. In this RDP, long-term improvements refer to the ultimate cross-section and supporting policy changes. Interim

improvements include an array of multi-modal route improvements, addressing both existing needs and needs expected to occur before the 2022 horizon year. Interim improvements were developed to be consistent with the ultimate cross-section. No schedule has been developed for either interim or ultimate improvements, as funding is uncertain. Moreover, as a highway of regional significance rather than a highway of statewide significance, SR 532 improvements will rely on a variety of sources for funding. Recommended improvements and implementation timing documented in this RDP will depend upon local planning and land-use decisions, as well as changes to statewide and/or regional transportation funding.

## 1.2 SUMMARY

SR 532 is a two-lane state route extending about 10 miles in an east-west alignment, from the rural community of Terry's Corner on Camano Island to an interchange with I-5 about 20 miles north of Everett. SR 532 is classified as a rural collector highway over its entire length. SR 532 is also designated as a highway of regional significance, or a non-highway of statewide significance (non-HSS) route. Regional and statewide significance designations are important factors in decisions about funding highway improvements, as discussed in the funding section of this RDP.

SR 532 in Snohomish County

SR 532 provides the only connecting route to the mainland for Camano Island, as well as the primary connection to and from I-5 for the city of Stanwood and surrounding rural northwest Snohomish County. Primary land uses in the corrido are agricultural, low-density residential, and natural resource extraction. Commercial and employment uses are concentrated in the city of Stanwood, located midway between the highway endpoints.

Seasonal peak traffic occurs during summer months, as Camano Island is a popular recreational destination. However, this RDP focuses on average annual traffic conditions typically experienced during mid-spring and mid-fall, which represents the overall operations of the corridor.

### 1.2.1 Existing Traffic Operations

Existing AM and PM peak-hour traffic conditions were analyzed at 20 intersections, including the only three signalized intersections on the route, which are all in Stanwood. Analysis of future traffic conditions focuses on the evening peak hour, since traffic volumes during the PM peak hour are noticeably higher than during the AM peak hour.

Although none of the signalized intersections operate today at Level of Service F (LOS F), two operate at LOS E during the PM peak hour, and nine of the unsignalized intersections analyzed operate at LOS F with existing PM peak-hour traffic. Conditions are better during the morning peak hour, with one signalized intersection operating at LOS E and three unsignalized intersections operating at LOS F. (LOS F at the unsignalized two-way stop controlled intersections affects only side street traffic, as through traffic on SR 532 does not stop.) Intersection levels of service below LOS D are considered to be

below acceptable performance thresholds in many jurisdictions, including Island County (for intersections of county roads with state highways).

WSDOT, with the *2003–2022 Washington Transportation Plan (WTP)*, replaced levels of service to determine thresholds of performance with a new travel-delay methodology. The new methodology was developed because traditional analysis methodologies focus on peak hour traffic conditions, and thus do not acknowledge congestion and delay occurring outside the peak period. A ratio of average annual daily traffic (AADT) to theoretical peak hour capacity, or ACR, is used to measure performance under the new methodology. The WSDOT performance standard for SR 532 is an ACR of 6.0 or better for Snohomish County and the city of Stanwood, and an ACR of 10.0 or better for Island County. The highway does not meet WSDOT's ACR standards with existing traffic, although the Island County segment is near the standard. Local jurisdictions may use different performance standards for streets and intersections within their boundaries, including intersections with state highways or other WSDOT facilities.

### 1.2.2 Future (2022) Traffic Operations

Increased traffic is expected throughout the SR 532 corridor, with PM peak-hour volumes projected by WSDOT to increase by some 60 percent between now and 2022 in the corridor as a whole, which corresponds to about 2.25 percent annual growth rate. Future traffic projections are based on historical traffic growth, land use development trends, and 2022 forecasts from Snohomish County and WSDOT Mt. Baker Area Island County travel demand forecasting models.

The 60 percent growth factor may be a conservatively high estimate for some side streets where turning movements are not likely to increase as much due to a lower expected level of development. However, existing volumes on these side streets are generally low. Adjusting the growth factor separately for side streets would be unlikely to affect future traffic conditions as measured by intersection LOS or corridor ACR.

Assuming no improvements in the corridor, all three signalized intersections and all but one of the unsignalized intersections are projected to operate at LOS F by 2022. All traffic at signalized intersections, and side street traffic at unsignalized intersections, will face long delays, typically greater than 80 seconds during the peak hour.

### 1.2.3 SR 532 Improvement Recommendations

With future development in the city of Stanwood and on Camano Island, SR 532 will require a range of improvements to safely and effectively accommodate the future transportation needs of both vehicular and non-motorized travel modes. This RDP makes recommendations for both physical improvements and regulatory changes that address projected LOS deficiencies, ACR deficiencies, safety, operational issues, and policy concerns. Recommendations are summarized below for interim and long-term improvements. Interim recommendations address needs that exist today or are expected to exist within 5 to 15 years, while long-term recommendations are for additional measures to accommodate projected 2022 travel demand.

#### *1.2.3.1 Interim Recommendations*

Recommendations in this section address conditions that exist today or are expected to exist within the near future.

- Implement traffic operations improvements, including adding turn lanes at selected intersections and eliminating left turns at certain other intersections.
- Restrict side street access to right-in/right-out only at selected intersections.
- Eliminate access at selected low-volume side streets where feasible alternative access routes exist or can be feasibly implemented.
- Add or lengthen turn lanes as needed to accommodate turning traffic.
- Install new traffic signals at selected intersections once traffic signal warrants are satisfied. Implement coordinated signal-timing plans from 102nd Avenue to 72nd Avenue.
- In coordination with local jurisdictions, improve the local street system to reduce reliance on SR 532 for local circulation.
- Widen shoulders to full design standards in conjunction with pavement overlay projects to accommodate and promote bicycle and pedestrian traffic. Such shoulder improvements should initially focus on the corridor segment west of 72nd Avenue within the city of Stanwood.
- Form an ongoing interagency coordinating committee (including staff from WSDOT, Island County, Snohomish County, City of Stanwood, Community Transit, and Island Transit) to review and prioritize corridor transportation improvement needs, develop implementation strategies, seek funding resources, and assist with other responsibilities as needed.
- Consider modifying access control standards for SR 532 within the city of Stanwood.

The benefit of these recommendations will be to provide a safer, more efficient corridor.

#### *1.2.3.2 Long-Term Recommendations*

Widen the highway to an ultimate cross-section with two lanes with wide shoulders in each direction throughout the corridor, including warranted turn lanes at intersections. Stage widening starting with selective climbing lane locations.

### 1.2.4 SR 532 RDP Organization

General topics addressed in the RDP chapters that follow are shown below.

- Route location, function, and classification.
- Description of the existing physical features of the highway.
- Existing 2001 and projected 2022 traffic operating conditions.

- Recommended route improvements and strategies, including ROW needs to guide corridor preservation.

- A brief review of environmental issues and roadside preservation as they relate to potential SR 532 improvements.

- A summary of public involvement and consistency with other plans.

- A summary of transportation financing tools.

# 2. ROUTE LOCATION, CLASSIFICATION, AND FUNCTION

## 2.1 SR 532 LOCATION, SETTING, AND FUNCTION

The SR 532 corridor starts on northern Camano Island in Island County and extends across the northwest corner of Snohomish County. This RDP covers the entire length of SR 532 from MP 0.00 at East Camano Drive to MP 10.09 at the interchange with I-5, located about 20 miles north of Everett. Figures 2-1 and 2-2 show the general project vicinity and a site map of the SR 532 corridor.

At the west end of the route, SR 532 passes through the community of Camano Island, a rural residential area experiencing rapid growth in recent years. SR 532 next passes through the city of Stanwood mid-way through the corridor. Stanwood, a rapidly growing municipality of about 3,925 people, serves both as a commercial center for the surrounding rural community and as a satellite suburb of Everett and the larger Puget Sound area. Strip commercial development is found along SR 532 in the northeast section of Camano Island (MP 0.00–3.80), the city of Stanwood (MP 3.80–4.25), and rural northwest Snohomish County (MP 4.25–10.09). From Stanwood to I-5, SR 532 passes through lands that are mainly rural, with land uses composed of farming, rural residential, and forested areas. SR 532 lies directly north of and roughly parallel to the Stillaguamish River Valley a few miles away. It comes into the proximity of the river only near its mouth where the river turns north to enter Port Susan and Skagit Bay.

SR 532 provides a vital "economic link" between the Camano Island/Stanwood area and the Interstate 5 corridor. This link transports goods, services, and workers between urban centers such as Seattle and Everett and the Camano Island/Stanwood area. In all, SR 532 is the primary transportation corridor for an estimated population of 3,925 people in the city of Stanwood and surrounding northwest Snohomish County area.

SR 532 also provides a corridor for recreational and residential traffic to and from Camano Island. Camano Island State Park is one of the major generators of recreational traffic to the Island. The Island is noteworthy for both its recreational areas and its attractiveness as a bedroom community. It is attempting to retain its rural character and open space by emphasizing cluster development in the face of increased development pressures. SR 532 is the only connecting route to the mainland for the Island, which has a population of about 13,300 residents based on current census information.

## 2.2 SR 532 ROUTE CLASSIFICATION CATEGORIES

This section reviews the access control, roadside, and design classifications that apply to SR 532. WSDOT and the Washington State Transportation Commission designate state highways as either highways of statewide significance, or regionally significant highways. The level of significance affects funding eligibility and the methodology required for analysis of highway operating conditions, as discussed later in this RDP.

Figure 2-1 Vicinity Map

Figure 2-2 Site Map

### 2.2.1 Access Control Classification

The intent of access management/access control is to maintain acceptable traffic flow in terms of safety, capacity, and travel speed while still providing an appropriate level of access. Studies have shown that the uncontrolled proliferation of driveways and intersections along a given section of roadway reduces the average travel speed, increases the number and severity of accidents, and inhibits bicycle and pedestrian usage. In addition, it has been shown that poorly designed entrances and exits cause congestion and create a negative image for the commercial district, which can affect property values and resultant tax revenues.

An objective of access management is to establish guidelines for the location and design of driveways providing access from public streets and highways to development on abutting property. The greatest level of access control is applied to roadways intended to serve the most through traffic (i.e., freeways, highways, and major arterials) while little or no access control is applied to local streets.

In addition to the "limited" (i.e., full) access control found on freeways and expressways, five additional access management classification levels have been established for WSDOT facilities, numbered from 1 to 5, with Class 1 the most restrictive and Class 5 the least restrictive. Class 1 facilities emphasize safe and efficient high-speed travel with a high degree of access control, while Class 5 facilities emphasize access over mobility, with posted speeds of 25 to 35 miles per hour. In the case of Classes 1 and 2, if alternative access to properties via non-state highways is available, then no access is provided directly to the state highways. Classes 3, 4, and 5 progressively balance land use with the through-function of state highways and allow more access points to the state highways. Classes 4 and 5 allow the most closely spaced access and generally apply to lower-speed highways in urbanized areas, or areas which have been developed to a relatively built-out condition. All new signalized connections require an engineering analysis to be submitted and approved, regardless of the spacing and whether the access is for a public street or private development.

Based on Washington Administrative Codes (WAC) 468-51 and 468-52, which implement the Revised Code of Washington (RCW), SR 532 has been assigned the classes listed in Table 2-1 for access management, as of 1996.

**Table 2-1. Access Management Classes on SR 532**

| MP Limits | Section | Class | Public Intersection Access Spacing | Minimum Access Spacing |
|---|---|---|---|---|
| 0.00–3.80 | East Camano Drive to Stanwood City Limits | 2 | 0.5 mi | 660 ft |
| 3.80–4.25 | City of Stanwood | 4 | 0.5 mi | 330 ft |
| 4.25–10.09 | Eastern Stanwood City Limits to I-5 | Limited | see note | see note |

Note: For state highways that are planned for the establishment of limited access control in accordance with the Master Plan for Limited Access Highways, an access control classification will be assigned to each highway segment to remain in effect until such time that the facility is established as a limited access facility. For SR 532, Class 2 Standards are in place for the "limited" classification section.

Source: WAC 468-52-040 – Access Control Classification System and Standards.

According to WAC 468-54, limited access classifications include "fully controlled limited access highway," "partially controlled limited access highway," and "modified controlled limited access highway." Fully controlled limited access allows no at-grade crossings or private driveway connections. Partially controlled limited access allows connections with selected public roads and may allow some private driveways and public street connections to be at-grade; commercial approaches must be via frontage road or to public road intersections. Modified access control allows most existing access points to remain, provided they were in place and in use at the time the limited access designation was established. For SR 532, the limited access restriction corresponds to Class 2, with minimum access spacing of 660 feet. The same 660-foot access spacing standard is assigned to the western section of the corridor from MP 0.00 to 3.80.

### 2.2.2 Freight and Goods Transportation System

The Freight and Goods Transportation System (FGTS) is an inventory of the tonnages of freight moving along the highways, streets, and roads of Washington for facilities carrying more than 4 million tons of freight annually. FGTS classifications are based on the annual tonnage of freight carried on the facility. T-1 facilities carry more than 10 million tons annually, T-2 facilities carry 4 to 10 million tons annually, and T-3 facilities carry 300,000 tons to 4 million tons annually. Changes in the economy, international trade, and the transportation industry, such as changes in truck travel patterns, cargoes, and tonnages, affect the system. SR 532 falls into the T-3 category, meaning that freight movement is not a primary role for the corridor compared to other state highways.

### 2.2.3 Design Level Standards

Projected design year traffic volumes on SR 532 fall within the range for C-1 Rural Collector full design standards[1] as shown in the WSDOT *Design Manual*. C-1 Standards call for four 12-foot travel lanes with an 8-foot right shoulder, a minimum median width of 4 feet, no parking, and a 150-foot ROW.

## 2.3 ZONING, LAND USE, AND ENVIRONMENTAL ELEMENTS

The following sections address the existing zoning, land use, and environmental elements of the land in the vicinity of SR 532.

### 2.3.1 Zoning

According to the Island County Planning Department, zoning designations around the western portion of SR 532 in Island County include rural, rural agriculture, rural village, commercial, agricultural, and rural service. Most of the land within the city of Stanwood is zoned commercial, industrial, or residential, based on the City of Stanwood Comprehensive Plan. From Stanwood to I-5 in Snohomish County, zoning shown in the county's Comprehensive Plan is largely residential with a 5-acre minimum lot size. Stanwood city limits are consistent with the city's urban growth boundary along the corridor, while the majority of the city's potential future expansion lies to the north.

[1] Washington State Department of Transportation, *Design Manual*, May 2001.

### 2.3.2 Land Use

Existing land use along the western portion of SR 532 (Camano Island) consists of small commercial uses, farming, and low-density residential development. Land use in Stanwood is mainly business, commercial, and residential in nature, while from Stanwood to I-5, land use consists of residential, agricultural, and small commercial development.

Camano Island contains 52 miles of saltwater shoreline. Shoreline that is visible from the highway and adjacent arterials may be considered to be scenic views that should be preserved. Vegetative cover on the Island consists largely of new growth forests, second only to agricultural areas in size. Coastal development includes both permanent and seasonal homes. No point on Camano Island is more than 2.5 miles from the Puget Sound shoreline. The scenic quality of Camano Island's rural landscape and shoreline are among its most valued assets. Rural areas surround downtown Stanwood, providing an abundance of trees, wildlife, and agricultural areas. Several old buildings in Stanwood have some level of historical significance, most notably those along 271st Street Northwest. The Pearson House in Stanwood is listed in both the Washington Heritage Register and the National Register of historic places.

### 2.3.3 Environmental Elements

On the East Hill of Stanwood, drainage problems exist due in part to the presence of rock and hardpan clay, which tends to allow stormwater to run off too quickly to be absorbed. The Stillaguamish River Valley covering much of northwest Snohomish County contains a flood plain, which extends over portions of SR 532 west of Stanwood, most of which are on bridges. Wetlands exist south of Stanwood at the northwest end of the Port Susan coast, and in smaller pockets in areas near SR 532. Any development, including new or improved roadways, impacting existing wetlands or species listed under the Endangered Species Act is subject to federal environmental regulations and permitting requirements. The area also contains sensitive areas such as stream corridors, ponds, and other water-related features.

# 3. DESCRIPTION OF THE EXISTING FACILITY

## 3.1 HISTORY

SR 532 formerly was a Snohomish County major collector arterial originally constructed with a dirt and oil mat surface in 1935. The original roadway surface was laid from Stanwood to Utsalady. In 1948, Washington State acquired ROW from Smith Road (MP 2.38) on Camano Island to just west of Stanwood (MP 3.80). Bridges were built to connect Camano Island to the mainland the same year. SR 532 officially became a state highway in 1970.

Table 3-1 summarizes some of the more important events, improvements, and maintenance projects that took place during the history of SR 532.

**Table 3-1. History of Major Projects on SR 532**

| Year | Location | Project Description |
|---|---|---|
| 1948 | Stillaguamish River and Davis Slough | Built bridges |
| 1959 | Camano to Stanwood | Paving with asphalt |
| 1962 | Stanwood to Lindstrom Road | Paving with asphalt |
| 1970 | Lindstrom Road to I-5 | Paving and drainage, etc. |
| 1977 | Hanstad to Sunrise | Terry's Corner alignment |
| 1978 | East Camano Drive to Davis Slough | Widen road to 11-foot lanes and 4-foot shoulders |
| 1992 | Smith Road to BNSF | Paving and drainage, etc. |
| 1993 | 64th Avenue to SR 5 | Paving with ACP |
| 1994 | East Camano Drive to Smith Road | Widening and repair |
| 1999 | 88th Avenue Northwest | Westbound right-turn lane channelization |
| 2000 | SR 532/SR 530 (Pioneer Highway) Intersection | Side slope and other drainage improvements |

## 3.2 HIGHWAY GEOMETRICS

This section addresses physical and functional characteristics of SR 532, such as lane geometry, horizontal and vertical alignment, intersection configuration and traffic control, structural and roadside features, and interchange locations. Transportation demand management, right-of-way widths, and utility locations are also addressed.

### 3.2.1 Lane and Shoulder Widths

Except for the three bridges and the section of highway in western Stanwood (MP 3.80 to 4.25), SR 532 generally has two 11- to 12-foot lanes with 4- to 10-foot shoulders. The three bridges are 26 feet wide from curb to curb, including two 11-foot lanes and two 2-foot shoulders (see Table 3-2). Between the west city limits of Stanwood at MP 3.80 and Camano Street at MP 4.13, SR 532 has a two-way left turn lane and wide outside shoulders providing on-street parking. Widening to accommodate turning lanes exists at intersections throughout the corridor, as shown in Table 3-3.

**Table 3-2. Bridge Data**

| MP | Number | Location | Length (Feet) | Program Year | Curb-to-Curb Width (Feet) |
|---|---|---|---|---|---|
| 2.90 | 532/1[a] | Davis Slough | 120 | 2024 | 26.0 |
| 3.39 | 532/2[a, b] | Stillaguamish River | 487 | 2024 | 26.0 |
| 4.98 | 532/6[a, b] | Burlington Northern Santa Fe Railroad | 699 | 2035 | 26.0 |
| 10.07 | 005/673W[c] | I-5 Southbound Lanes | 135 | 2046 | 52.0 |
| 10.09 | 005/673E | I-5 Northbound Lanes | 135 | 2046 | 52.0 |

[a] Functionally obsolete due to substandard roadway/shoulder widths.

[b] Structurally deficient due to high chloride content in the bridge decks.

[c] Functionally obsolete due to substandard clearance to crossroad.

Note: See Appendix C that more fully describes these terms.

The existing geometrics for SR 532 are generally adequate except for specific locations noted in the following sections where facilities are less than adequate in terms of curb, gutter, sidewalk, horizontal and vertical curvature, or sight distance.

**Table 3-3. Channelized Intersections**

| MP | Location | Type of Channelization |
|---|---|---|
| 0.00 | Sunrise Boulevard | Left-turn Lanes |
| 0.84 | Heichel Road | Eastbound Left-turn Lane |
| 1.10 | Fox Trot Way | Left-turn Lanes |
| 1.85 | Good Road | Eastbound Left-turn Lanes/Westbound Right-turn Lane |
| 2.38 | Smith Road | Left-turn Lanes |
| 3.8–4.1 | City of Stanwood | 2-Way, Left-Turn Lane |
| 4.11 | Camano Street | Eastbound Left-turn Lane |
| 4.90 | 88th Avenue Northwest | Left-turn Lanes/Signal/Westbound Right-turn Lane |
| 5.23 | Pioneer Highway | Left-turn Lanes/Signal |
| 5.90 | 72nd Avenue Northwest | Left-turn Lanes/Signal |
| 6.45 | 64th Avenue Northwest | Westbound Right-turn Taper |
| 7.19 | 52nd Avenue Northwest | Left/Right-turn Lanes |
| 8.22 | 36th Avenue Northwest | Right-turn Lanes |
| 8.73 | 28th Avenue | Right-turn Lanes |
| 9.79 | 12th Avenue Northwest | Right-turn Lanes |
| 10.02 | I-5 Southbound off-ramp | Eastbound Right-turn lane |
| 10.09 | I-5 Northbound off-ramp | Northbound Right-turn lane |

### 3.2.2 Horizontal and Vertical Alignment

SR 532 follows a generally straight alignment with the exception of a few gentle curves on Camano Island. Terrain is generally flat to rolling, with the western section mostly in rolling terrain and the central part of Stanwood mostly in flat terrain. Vertical grades up to 8 percent are present on the western portion of the highway on Camano Island. On the eastern portion of SR 532 from Lindstrom Road to I-5, vertical grades are as high as 5 percent.

SR 532 on Camano Island

### 3.2.3 Bridges and Structures

There are five bridges on SR 532 between MP 0.00 and MP 10.09, including two in the SR 532/I-5 interchange. Table 3-2 provides critical data about the bridges, including bridge dimensions and target replacement year, also called program year based on a 75-year replacement cycle.

### 3.2.4 Traffic Signals

There are three existing traffic signals on SR 532, two signals programmed for installation, and five intersections on the WSDOT Northwest Region's (NW Region) current signal priority list (SPL). Programmed signals are discussed later in the report, in Section 5.2.1. Intersections currently signalized and those on the current NW Region SPL are discussed below.

SR 532 at Pioneer Highway

Existing traffic signals control the intersections of SR 532 with 88th Avenue Northwest (MP 4.90), Pioneer Highway (MP 5.23), and 72nd Avenue Northwest (MP 5.90). All three signals provide protected left-turn phasing for SR 532, and the 72nd Avenue signal provides protected left turns for side street traffic. Stop signs currently control cross street traffic at other intersections along SR 532.

The SPL is a continuously updated list of candidate locations for signalization. As of July 16, 2001, the NW Region's SPL includes five intersections in the SR 532 corridor out of 285 intersections region wide. None of these intersections are programmed for signalization at this time. Requests for signalization prompt additions to the SPL, after which WSDOT staff collect accident and volume data for the additions to determine their priority. Lower values correspond to a higher priority. The five intersections in the July 2001 SPL include:

- SR 532/Sunrise Boulevard (256 out of 285).
- SR 532/ North Camano Drive (89 out of 285).
- SR 532/Fox Trot Way (279 out of 285).
- SR 532/Good Road (219 out of 285).
- SR 532/I-5 Southbound Ramps (166 out of 285).

### 3.2.5 Shoulder Treatment and Drainage Facilities

Within the city of Stanwood, there are curbs, gutters, and sidewalks along SR 532 and along many of the city's streets connecting to SR 532. Some of these facilities are in poor condition. Paved shoulders are generally used in the areas outside of the city of Stanwood, corresponding to the rural character of the majority of the corridor. Drainage structures along SR 532 include culverts, ditches, and stormwater detention. No retaining walls exist along SR 532.

### 3.2.6 Design Speeds and Sight Distances

Design speeds for the facility vary from 45 to 80 miles per hour, while posted speeds range from 35 to 55 miles per hour. Two vertical curves on Camano Island have limited sight distances and design speeds of 45 miles per hour. Horizontal curves have vegetation-obstructed sight distances on Camano Island, particularly at the Hanstad Road intersection. The highest design speeds occur on the eastern portion of the facility between Stanwood and I-5, where the design speeds range from 55 to 80 miles per hour. No-passing zones limit nearly half of SR 532.

SR 532 in the City of Stanwood

### 3.2.7 Existing Channelization

Table 3-3 lists the intersections currently channelized with turn lanes or tapers on SR 532. The remaining intersections are not provided with turn lanes or tapers.

### 3.2.8 Urban Section

Each state highway has a roadside character designation, which is used to coordinate and guide planning, design, construction, and maintenance activities affecting the highway roadside. Highway character designations are listed in the State *Roadside Classification Plan.*[2] Except for 1.5 miles through Stanwood from MP 3.80 to MP 5.30 classified as semiurban, SR 532 is classified as rural.

The city of Stanwood contains a resident population of about 3,925 according to the state census data dated April 1, 2000, an increase of nearly 90 percent compared to the 1990 population of 2,065. By the year 2022, the city of Stanwood projects its population to increase by another 80 percent to about 7,000 under a medium growth scenario due to internal growth in migration and annexation.

[2] Washington State Department of Transportation, *Roadside Classification Plan,* 1996: Roadside Classification Log.

### 3.2.9 Transportation Systems Management/Travel Demand Management

Transportation Systems Management (TSM) refers to techniques used to improve the operating efficiency of the existing transportation system and thus enhance existing capacity without constructing additional through lanes. TSM is used more frequently in urban areas and includes measures such as demand responsive traffic signal coordination, bus-actuated queue bypass lanes, high-occupancy vehicle (HOV) lanes and Surveillance Control and Driver Information Systems (SC & DI).

Travel Demand Management (TDM) describes measures used to reduce travel demand during periods of peak demand or on a daily or annual basis. TDM includes measures such as ridesharing programs; transit service; flexible work schedules; and on-site facilities such as childcare, cafeterias, and dry cleaning.

While there are no TSM improvements on SR 532 today, there are several TDM measures in the corridor, including three park-and-ride lots, two Community Transit routes, and one Island Transit route.

### 3.2.10 Interchanges and Intersections

The sole interchange on the route is a full diamond configuration located at the intersection of I-5 and SR 532. On- and off-ramps are single-lane, with stop signs controlling off-ramp traffic for the southbound ramp intersection and an all-way stop control at the northbound ramp intersection.

Figure 3-1, a map of the section of SR 532 through the City of Stanwood, shows most of the major intersections along SR 532, including 102nd Avenue Northwest, Broadway, 98th Drive Northwest, Old SR 530, 72nd Avenue Northwest, and 64th Avenue Northwest. Table 3-4 lists the type of configuration and traffic control at all the major intersections in the corridor, including those outside Stanwood.

Figure 3-1 Map of City of Stanwood

**Table 3-4. Major Intersections and Interchange**

| MP | Intersection/Interchange Location | Intersection/Interchange Type/Traffic Control |
|---|---|---|
| 0.00 | SR 532/Sunset Boulevard | 4-Leg Intersection/minor leg stop-controlled[a] |
| 1.85 | SR 532/Good Road | 4-Leg Intersection/2-way stop-controlled |
| 2.38 | SR 532/Smith Road | 4-Leg Intersection/2-way stop-controlled |
| 3.97 | SR 532/102nd Avenue Northwest | "T" Intersection/minor leg stop-controlled[a] |
| 4.11 | SR 532/Camano Street | Wye Connection/minor leg stop-controlled |
| 4.25 | SR 532/98th Drive Northwest | 4-Leg Intersection/2-way stop-controlled |
| 4.90 | SR 532/88th Avenue Northwest | 4-Leg Intersection/Signalized |
| 5.23 | SR 532/Pioneer Highway | 4-Leg Intersection/Signalized |
| 5.90 | SR 532/72nd Avenue Northwest | 4-Leg Intersection/Signalized |
| 6.45 | SR 532/64th Avenue Northwest | 4-Leg Intersection/2-way stop-controlled |
| 8.22 | SR 532/36th Avenue Northwest | 4-Leg Intersection/2-way stop-controlled |
| 8.74 | SR 532/28th Avenue Northwest | 4-Leg Intersection/2-way stop-controlled |
| 9.94 | Old SR 99/SR 532 | 4-Leg Intersection/2-way stop-controlled |
| 10.02 | SR 532/I-5 Interchange | Diamond Interchange/combination 2-way and all-way stop-controlled |

[a] A traffic signal is planned as an interim improvement.

### 3.2.11 Right-of-Way Widths

As a collector facility, SR 532 has a 150-foot right-of-way (ROW) design standard for rural areas. In urban areas, less than 150-foot ROW is acceptable. Table 3-5 lists existing ROW through the corridor. The table shows minimum and maximum ROW on each side of the centerline for each segment, as shown in WSDOT as-built drawings. ROW is less than the standard from MP 0.00 to 2.38, ranging from 90 to 125 feet. From MP 2.39 to the end of the corridor, ROW meets or exceeds design standards except on the Mark Clark Bridge over the Stillaguamish River and in east Stanwood from 72nd Avenue Northwest to 64th Avenue Northwest. Dimensions shown in Table 3-5 would need to be verified through surveys prior to final design or construction activities.

**Table 3-5. Summary of Existing Right-of-Way Widths**

| Milepost | | Location | Right of Way Range (feet) | | |
|---|---|---|---|---|---|
| From | To | | Left | Right | Total |
| 0.00 | 0.42 | Sunrise to North Camano | 40–40 | 70–70 | 110–110 |
| 0.43 | 0.57 | North Camano to Hanstad | 40–40 | 80–80 | 120–120 |
| 0.58 | 0.82 | Hanstad to Heichel | 30–40 | 80–80 | 110–120 |
| 0.83 | 1.10 | Heichel to Fox Trot | 30–50 | 70–75 | 100–125 |
| 1.11 | 1.34 | Fox Trot to Rekdal (Juniper Beach) | 43–43 | 77–77 | 120–120 |
| 1.35 | 1.84 | Rekdal (Juniper Beach) to Good | 30–40 | 70–80 | 100–120 |
| 1.85 | 2.38 | Good to Smith | 45–40 | 45–80 | 90–120 |
| 2.39 | 2.90 | Smith to County Line | 75–80 | 75–75 | 150–155 |
| 2.91 | 3.48 | County Line to Mark Clark Bridge | 75–125 | 75–125 | 150–250 |
| 3.49 | 4.03 | Mark Clark Bridge to 102nd Avenue | 40–40 | 40–40 | 80–80 |
| 4.04 | 4.75 | 102nd Avenue to 92nd | 75–75 | 75–100 | 150–175 |
| 4.76 | 4.90 | 92nd to 88th | 75–105 | 75–85 | 150–190 |
| 4.91 | 5.25 | 88th to Pioneer | 75–105 | 110–110 | 185–215 |
| 5.26 | 5.90 | Pioneer to 72nd | 75–130 | 75–130 | 150–260 |
| 5.91 | 6.45 | 72nd to 64th | 30–110 | 75–175 | 105–285 |
| 6.46 | 7.21 | 64th to 52nd | 75–140 | 75–200 | 150–340 |
| 7.22 | 8.22 | 52nd to 36th | 75–100 | 75–100 | 150–200 |
| 8.23 | 8.74 | 36th to 28th | 75–75 | 75–75 | 150–150 |
| 8.75 | 10.02 | 28th to I-5 | 75–100 | 75–180 | 150–280 |

Table 3-6 shows how much additional ROW is needed on each side of the highway to meet the 150-foot standard, for those segments in Table 3-5 that do not meet the standard.

**Table 3-6. Additional Right-of-Way Required to Meet 150-Foot Standard**

| Milepost | | | Additional Right-of-Way (feet) | | |
|---|---|---|---|---|---|
| From | To | Location | Left | Right | Total |
| 0.00 | 0.42 | Sunrise to North Camano | 35–35 | 5–5 | 40–40 |
| 0.43 | 0.57 | North Camano to Hanstad | 35–35 | 0–0 | 35–35 |
| 0.58 | 0.82 | Hanstad to Heichel | 35–45 | 0–0 | 35–45 |
| 0.83 | 1.10 | Heichel to Fox Trot | 25–45 | 0–5 | 25–50 |
| 1.11 | 1.34 | Fox Trot to Rekdal (Juniper Beach) | 32–32 | 0–0 | 32–32 |
| 1.35 | 1.84 | Rekdal (Juniper Beach) to Good | 35–45 | 0–5 | 35–50 |
| 1.85 | 2.38 | Good to Smith | 35–40 | 0–30 | 35–70 |
| 3.49 | 4.03 | Mark Clark Bridge to 102nd Avenue | 35–35 | 35–35 | 70–70 |
| 5.91 | 6.45 | 72nd to 64th | 0–45 | 0–0 | 0–45 |

Note: Range of right-of-way width for segment indicated, as illustrated in WSDOT as-built drawings for SR 532.

## 3.3 MISCELLANEOUS FACILITIES

This section addresses existing pedestrian and bicycle facilities, transit operations, park-and-ride lots, railroad lines, and truck-climbing lanes. Safety rest areas and airports are also described, although no rest areas or airports exist in the general vicinity of SR 532.

### 3.3.1 Pedestrian and Bicycle Facilities

There are no pedestrian facilities along SR 532, such as pedestrian bridges or sidewalks, except for sidewalks within the Stanwood city limits and along the sides of the three existing bridges. Most sidewalks in Stanwood occur along 271st Street Northwest, and are maintained by the City.

No designated bicycle facilities exist along SR 532. Bicycle tours often use SR 532 through Stanwood as part of their route. State standards require at least a 4-foot shoulder along a highway to qualify for a Class IV Bikeway. The existing shoulders range from 4 to 10 feet in width, which meet the Class IV standard and are generally satisfactory for bicycle travel. In 1994, the "East Camano Drive to Smith Road" widening and realignment project constructed 6-foot shoulders from MP 0.00 to approximately MP 2.38.

### 3.3.2 Transit Service – Bus Routes

Two Community Transit routes, Nos. 422 and 247, currently serve the Stanwood area. Route 422 travels on SR 532 and I-5 and connects Stanwood to Marysville and Seattle. It is mainly used as a commuter route during the weekdays, with three runs in the morning and three runs in the evening. Route 247

makes a loop through north Stanwood and connects Stanwood to Marysville and Everett. During the weekdays, it has four runs in the morning and four runs in the evening. Route 247 serves not only rural Snohomish County but provides the only connection to a rapidly growing Camano Island. Several school buses also run the length of SR 532 to serve the Stanwood School District and have many stops along the way.

Island Transit provides local transit service for Island County. Island Transit Route No. 3 connects Camano Island and Stanwood. It loops through Stanwood as it travels to and from the Island, with ten weekday runs throughout the day. Island Transit is a fare-free service, with operating expenses covered through a local sales tax of $^{6}/_{10}$ of 1 percent on every taxable dollar spent in Island County.

There are no existing bus pullouts along SR 532 that are paved or marked for bus use. School bus stop locations are fluid, responding to development patterns and demographics. As a result, the School District does not develop fixed bus stops along SR 532.

### 3.3.3 Park-and-Ride Lots

Two existing park-and-ride lots serve the SR 532 corridor, both operated by Community Transit of Snohomish County and served by Community Transit Routes No. 422 Express and No. 247. One lot is located in the southwest quadrant of the I-5/SR 532 interchange. Demand at this 102-space lot exceeds capacity, even after 55 stalls were added to the original 47 stalls. The second park-and-ride lot is located in Stanwood near 267th Place Northwest and 88th Avenue Northwest on the south side of SR 532. Another area in Stanwood used for park-and-ride commuters is located at Viking Village at 88th Avenue Northwest, north of SR 532. This area is leased by Community Transit, with capacity for approximately 30 vehicles, and is also served by Community Transit Routes No. 422 express and No. 247. The two lots on either side of 88th Avenue Northwest, with a total of 74 spaces, are not directly accessible from the highway and have a history of flooding and vandalism. As a result, many commuters drive out to the lot at the I-5 interchange. The most recent Community Transit occupancy survey revealed 26 percent utilization of the Stanwood park-and-ride lots.

I-5/SR 532 Park-and-Ride

267th Place Northwest/88th Avenue Park-and-Ride

### 3.3.4 Rail Facilities

SR 532 passes over Burlington Northern Santa Fe Railway (BNSF) tracks at Bridge 532/6 at MP 4.99. Two food processing plants in the Stanwood area have railroad spur connections to this BNSF mainline, which they utilize for transportation of produce. A railroad spur terminating west of Stanwood crosses 270th Street Northwest and intersects Saratoga Street at the West Pass Stillaguamish River.

### 3.3.5 Truck Climbing Lanes

A wide shoulder designated for slow-moving vehicles serves trucks returning to Camano Island from the sand-and-gravel quarry located approximately 1,100 feet east of the Snohomish County/Island County boundary (MP 2.38 to MP 2.63). The shoulder becomes a shared through-right turn lane approaching the intersection of Smith Road, merging back into the westbound lane at MP 2.30 just west of Smith Road.

### 3.3.6 Safety Rest Areas

SR 532 has no safety rest areas today. Safety rest areas on non-interstate highways are located primarily in response to motorist needs. There is, however, a public information display with travel-related information located at Terry's Corner. This facility, unlike a rest area, does not contain permanent public rest rooms, although until recently the Camano Island Chamber of Commerce maintained a portable toilet (outhouse) at this location.

### 3.3.7 Airports

No airports exist directly along SR 532, although the Arlington Airport lies some 10 miles southeast of the I-5/SR 532 Interchange, and a small airport for very light planes is located off Utsalady Road approximately 1.1 miles northwest of the SR 532/Good Road Intersection on Camano Island.

# 4. PRESENT AND PROJECTED OPERATING CONDITIONS

## 4.1 EXISTING TRAFFIC PATTERNS AND LEVELS OF SERVICE

City and county roads and private driveways intersecting with SR 532 result in considerable local traffic accessing or crossing the state highway. Over half of some 24 local street intersections along SR 532 are "T" intersections. As a result, SR 532 serves as a connector for local traffic to continue north or south on adjacent roadways as well as providing an important east-west conduit for local traffic. The highway serves as the sole land-based transportation connection from Camano Island to mainland Snohomish County.

Table 4-1 shows existing AADT, PM peak-hour traffic, and truck percentages (where available), based on traffic data collected and seasonally adjusted by WSDOT. Traffic data was generally collected during off-peak winter months and adjusted for seasonal variations to represent average annual traffic conditions. Average annual traffic on SR 532 is about 15 percent lower than typical peak summer conditions, when Camano Island parks and beaches attract much more activity. The AADT accounts for seasonal variations and gives representative yearly averages for daily traffic volumes in both directions on SR 532. Throughout the day and especially during peak hours, traffic volumes remain high on both the mainline facility and on the major intersecting streets even during non-summer months.

**Table 4-1. 2001 Traffic Volumes for SR 532**

| MP | Location | Truck Percentage (Single/Double) | 2001 AADT | 2001 Peak Hour Traffic Volume |
|---|---|---|---|---|
| 0.02 | East Camano Drive | | 13,000 | 1,700 |
| 2.38 | Smith Road | | 17,000 | 2,200 |
| 2.91 | Davis Slough | | 17,000 | 1,900 |
| 4.90 | Before Junction of 88th Avenue Northwest/268th Northwest | 6%/1% | 16,500 | 1,600 |
| 5.25 | Old SR 530 | | 16,000 | 1,900 |
| 5.90 | 72nd Avenue Northwest | | 11,000 | 1,700 |
| 8.74 | 28th Avenue Northwest | 7%/1% | 13,000 | 1,700 |
| 10.02 | I-5 Southbound Ramp West Leg | | 13,000 | 1,700 |
| 10.14 | I-5 Northbound Ramp West Leg | | 8,000 | 1,200 |

Source: WSDOT Northwest Region and WSDOT TRIPS System Annual Traffic Report

In consultation with project stakeholders, WSDOT Northwest Region selected 20 intersections for detailed analysis of traffic operations. Traffic operating conditions were analyzed and reported based on 2000 *Highway Capacity Manual* (HCM) methodologies for two-way and all-way stop-controlled intersections, as well as signalized intersections. The HCM methodology produces a *level of service* (LOS), which is used to compare operating conditions. Levels of service are qualitative descriptions of traffic operations based on calculated levels of vehicle delay. Similar to report cards, they range from LOS A to LOS F, with each letter corresponding to a range of calculated delay. LOS A indicates free-flowing conditions with minimal delay and LOS F indicates long delays, while LOS B through LOS E indicate increasing levels of vehicle delay and congestion.

The three signalized intersections in the SR 532 corridor generally operate better in the morning peak hour, when one intersection functions at LOS D or worse, compared to the evening peak hour when all three signals operate at or below LOS D. Table 4-2 shows current intersection LOS for existing AM and PM peak-hour conditions, and Figure 4-1 illustrates existing intersection turning movements for the worst-case PM peak hour.

**Table 4-2. 2001 Existing Level-of-Service Summary**

| Intersection Information | | | | | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|---|
| Map ID | MP | North-South Street | East-West Street | Type of Control | LOS | Delay (sec/vehicle) | LOS | Delay (sec/vehicle) |
| a | 0.00 | Sunrise Boulevard | East Camano Drive | NB-SB Stop | B | 11.6 | F | 55.8 |
| b | 0.57 | Hanstad Road | SR 532 | SB Stop | A | 8.6 | C | 16.7 |
| c | 0.82 | Heichel Road | SR 532 | SB Stop | D | 27.8 | D | 28.5 |
| d | 1.10 | Fox Trot Way | SR 532 | NB Stop | C | 24.3 | F | 76.0 |
| e | 1.34 | Juniper Beach Road | SR 532 | NB-SB Stop | E | 43.3 | F | 95.7 |
| f | 1.85 | Good Road | SR 532 | NB-SB Stop | F | 271.9 | F | 267.3 |
| g | 2.38 | Smith Road | SR 532 | NB-SB Stop | F | 85.6 | F | 84.7 |
| h | 4.03 | 102nd Avenue NW | SR 532 | NB-SB Stop | D | 32.4 | F | 197.1 |
| I | 4.11 | Camano Street | SR 532 | SB Stop | C | 18.2 | E | 45.0 |
| j | 4.25 | 98th Drive NW | SR 532 | NB-SB Stop | D | 30.5 | F | 67.4 |
| k | 4.90 | 88th Avenue NW | SR 532 | Signalized | C | 24.5 | D | 41.8 |
| l | 5.25 | Pioneer Highway | SR 532 | Signalized | C | 25.8 | E | 66.0 |
| m | 5.90 | 72nd Avenue NW | SR 532 | Signalized | E | 66.3 | E | 70.2 |
| n | 6.45 | 64th Avenue NW[a] | SR 532 | NB-SB Stop | F | 54.6 | D | 34.5 |
| o | 8.22 | 36th Avenue NW[a] | SR 532 | NB-SB Stop | B | 14.5 | B | 12.0 |
| p | 8.74 | 28th Avenue NW | SR 532 | NB-SB Stop | D | 30.8 | E | 44.0 |
| q | 9.79 | 12th Avenue NW | SR 532 | SB Stop | D | 30.2 | D | 33.1 |
| r | 9.94 | Old SR 99 | SR 532 | NB-SB Stop | C | 21.1 | F | 115.8 |
| s | 10.02 | I-5 SB Ramps | SR 532 | SB Stop | B | 12.6 | C | 23.9 |
| t | 10.04 | I-5 NB Ramps | SR 532 | All-Way Stop | B | 10.1 | F | 76.5 |

[a] AM turning movements estimated as reverse of PM turning movements.

Note: MP = Milepost, NB = northbound, SB = Southbound, NW = Northwest

Figure 4-1 Existing 2001 PM Peak Hour Turning Movements

Four unsignalized intersections along SR 532 operate at LOS E or LOS F during the AM peak hour, while 11 operate at LOS E or LOS F in the evening peak hour. However, except for the all-way stop at the I-5 northbound ramp, delays listed in Table 4-2 for unsignalized intersections only apply to traffic turning onto SR 532 from side streets. In most cases, side-street volumes represent a small percent of the total intersection volume; through traffic on SR 532 does not stop and faces little or no delay due to intersection operations. Left turns off of SR 532 at unsignalized intersections generally operate at LOS A or LOS B with little delay. The intersections of SR 532 with Good Road and Old SR 99 have the highest side street turning movements and thus the greatest cumulative intersection delay. At the SR 532/I-5 northbound ramp terminal, traffic for all approaches is stop-controlled and operates at LOS F during the PM peak hour.

Corridor traffic volumes also were analyzed using the new travel delay methodology used by WSDOT in the *2003–2022 Washington Transportation Plan* (2003–2022 WTP). The travel delay methodology evaluates travel conditions on a 24-hour basis, to better reflect the extent of congestion and delay not captured in analysis limited to peak-hour conditions. Performance is reported as the ratio between daily traffic volumes and peak-hour capacity (**a**nnual average daily traffic to hourly **c**apacity **r**atio, or ACR). WSDOT uses ACR thresholds for state highways to measure performance, identify the need for improvements, and evaluate the relative effectiveness of alternative improvement measures. For planning purposes, WSDOT applies ACR deficiency thresholds of 10.0 for urban areas and 6.0 for rural areas. ACR values greater than these thresholds indicate deficient segments or corridors.

Existing 2001 traffic volumes were analyzed using the travel delay methodology and compared to the ACR standards in the 2003–2022 WTP. ACR calculations were aggregated separately for Island County, the city of Stanwood, and Snohomish County, with the following results:

- ACR = 10.86 in Island County versus ACR standard of 10.0.
- ACR ranges from 7.37 to 11.93 within the Stanwood city limits versus ACR standard of 6.0.
- ACR = 8.23 in Snohomish County versus ACR standard of 6.0.

SR 532 operates worse than ACR standards today throughout the corridor. As reported in the December 2000 *Island County Comprehensive Plan Transportation Element*, the ACR standard of 10.0 for Island County is the outcome of coordination between WSDOT, elected officials and staff from Island County, and the Skagit/Island Regional Transportation Planning Organization Policy Board. The ACR results are presented here for consistency, both with current WSDOT methodology and the Island County and Snohomish County Comprehensive Plans.

Due to existing delay and traffic congestion, especially the long peak-hour queues generated at the SR 532/I-5 northbound off-ramp, many commuter trips divert to adjacent interchanges along I-5. These diversions result in increased and undesirable traffic volumes on other rural roadways in the area, such as Pioneer Highway and 300th Street Northwest.

## 4.2 ACCIDENT HISTORY

Accident history data included in this RDP covers the years 1999 and 2000. Accident data prior to that period is incomplete and therefore was not used. The summary of accidents along SR 532 is shown in Table 4-3.

**Table 4-3. 1999–2000 Accident History on SR 532 (MP 0.00–10.09)**

| Year | Total Accidents | Property Damage Only | Injury Accidents | Fatal Accidents |
|---|---|---|---|---|
| 1999 | 96 | 55 | 41 | 0 |
| 2000 | 107 | 70 | 36 | 1 |
| **Total** | **203** | **125** | **77** | **1** |

The one fatal accident that occurred was located at MP 0.30, which is near Terry's Corner. This was a head-on collision resulting in one fatality. It should be noted that in 1998, three fatal accidents occurred resulting in five fatalities. One of these accidents occurred at Fox Trot Way (MP 1.10), and the other two occurred between 64th Avenue Northwest and 36th Avenue Northwest (MP 7.41 and 8.03). No data is available to determine the cause or type of the 1998 fatal accidents.

Accident history by location and type are summarized in Table 4-4. No accidents were recorded on the segments that do not appear in the table.

**Table 4-4. 1999–2000 Accident History by Location and Type**

| MP | Location | Number of Accidents | Accident Type (Number of Accidents) |
|---|---|---|---|
| 0.00 | Sunrise Boulevard | 2 | Fixed Object (2) |
| 0.01–0.56 | Between Sunrise Boulevard and Hanstad Road | 5 | Fixed Object (2), Head-On (1), Rear-End (1), Other (1) |
| 0.57 | Hanstad Road | 5 | Rear-End (4), Sideswipe (1) |
| 0.83–1.09 | Between Heichel Road and Fox Trot Way | 2 | Fixed Object (2) |
| 1.34 | Juniper Beach Road | 5 | Rear-End (2), Enter at Angle (2), Other (1) |
| 1.35–1.84 | Between Juniper Beach Road and Good Road | 4 | Rear-End (3), Sideswipe (1) |
| 1.85 | Good Road | 2 | Enter at Angle (1), Fixed Object (1) |
| 1.86–2.37 | Between Good Road and Smith Road | 3 | Driveway Entering (1), Other (2) |
| 2.38 | Smith Road | 1 | Enter at Angle (1) |
| 2.39–4.02 | Between Smith Road and 102nd Avenue Northwest | 24 | Rear-End (8), Driveway Entering (7), Fixed Object (1), Sideswipe (1), Other (7) |
| 4.03 | 102nd Avenue Northwest | 6 | Hit Parked Car (2), Enter at Angle (2), Sideswipe (1), Rear-End (1) |
| 4.04–4.10 | Between 102nd Avenue Northwest and Camano Street | 3 | Hit Parked Car (1), Rear-End (1), Other (1) |

**Table 4-4. 1999–2000 Accident History by Location and Type (Continued)**

| MP | Location | Number of Accidents | Accident Type (Number of Accidents) |
|---|---|---|---|
| 4.11 | Camano Street | 3 | Enter at Angle (2), Rear-End (1) |
| 4.12–4.24 | Between Camano Street and 98th Drive Northwest | 5 | Rear-End (2), Driveway Entering (1), Other (2) |
| 4.25 | 98th Drive Northwest | 10 | Rear-End (7), Enter at Angle (1), Other (2) |
| 4.26–4.89 | Between 98th Drive Northwest and 88th Avenue Northwest | 3 | Rear-End (3) |
| 4.90 | 88th Avenue Northwest | 15 | Rear-End (13), Other (2) |
| 4.91–5.24 | Between 88th Avenue Northwest and Pioneer Highway | 11 | Rear-End (9), Other (2) |
| 5.25 | Pioneer Highway | 22 | Rear-End (19), Enter at Angle (1), Other (2) |
| 5.26–5.89 | Between Pioneer Highway and 72nd Avenue Northwest | 10 | Rear-End (9), Fixed Object (1) |
| 5.90 | 72nd Avenue Northwest | 24 | Enter at Angle (9), Rear-End (8), Sideswipe (1), Wildlife (1), Other (5) |
| 5.91–6.44 | Between 72nd Avenue Northwest and 64th Avenue Northwest | 1 | Other (1) |
| 6.45 | 64th Avenue Northwest | 2 | Enter at Angle (1), Wildlife (1) |
| 6.46–8.21 | Between 64th Avenue Northwest and 36th Avenue Northwest | 7 | Wildlife (2), Fixed Object (1), Overturn (1) Other (3) |
| 8.22 | 36th Avenue Northwest | 2 | Rear-End (2) |
| 8.23–8.73 | Between 36th Avenue Northwest and 28th Avenue Northwest | 2 | Wildlife (1), Other (1) |
| 8.74 | 28th Avenue Northwest | 2 | Rear-End (2) |
| 8.75–9.78 | Between 28th Avenue Northwest and 12th Avenue Northwest | 10 | Fixed Object (7), Rear-End (1), Wildlife (1), Other (1) |
| 9.79 | 12th Avenue Northwest | 3 | Rear-End (3) |
| 9.94 | Old SR 99 | 6 | Enter at Angle (4), Rear-End (1), Fixed Object (2) |
| 9.95–10.01 | Between Old SR 99 and I-5 Southbound Ramps | 1 | Other (1) |

As shown in the above table, the majority of the accidents occurred at the signalized intersections of 88th Avenue Northwest, Pioneer Highway, and 72nd Avenue Northwest. Most of the accidents were rear-end types. This is common for signalized intersections, especially when the rest of the corridor is unsignalized. A driver can become accustomed to driving without stopping along an unsignalized portion of the corridor. When the driver then approaches a traffic signal with vehicles fully stopped ahead, the driver may not be alerted to this condition. This can result in a large number of rear-end accidents. Accident statistics can be found in Appendix D.

The Washington State Department of Transportation uses two major programs to identify and correct potentially unsafe locations. These are the Hazardous Accident Location (HAL) and the High Accident Corridor (HAC) programs. The HAL and HAC programs used by the six WSDOT Regions are one of the major components used in developing their construction programs.

***Hazardous Accident Locations*** are segments less than one-tenth of a mile long which have experienced a higher than average rate of severe accidents during the previous two years. In order to give added weight to fatal and serious injury collisions, each accident is assigned points based on its severity. Locations are evaluated for HAL status by WSDOT based on the number and severity of accidents, traffic volumes, and roadway characteristics, such as number of lanes and type of access control. Potential safety improvements are evaluated based on cost-benefit analysis using WSDOT cost factors for various types of accidents. For example, current cost factors for a property damage accident is $6,000, compared to $1,000,000 for a fatal or disabling injury accident. The aggregate societal cost of accidents at each HAL site is then used in the cost benefit analysis after identifying the potential benefit of the improvement and the estimated construction cost, both amortized over the lifetime of the improvement. An improvement's potential benefit is based on the type of accident that research has shown it will reduce. For example, protected left-turn pockets can reduce angle accidents, while right-turn pockets can reduce rear-end collisions.

***High Accident Corridors*** are sections of state highway, one or more miles long, which have a higher than average number of severe accidents over a continuous period of time. For the analysis of HACs, accident records are analyzed in 1-mile segments by 0.5-mile increments. For each segment, accident data is compared to statewide averages for accident severity per mile, number of accidents per mile, and severity per accident per mile. If any given mile section is above all three of these averages during any one 3-year group, then it is considered part of an HAC. The same severity rating and societal cost amounts used for HALs are also used for HACs. Further study, including cost-benefit analysis of potential improvements, is conducted for HACs with societal costs per mile above the average for the specific WSDOT Region.

WSDOT analyzed current accident records for SR 532, including 1999 and 2000 accident data for HALs, and 1996 through 2000 accident data for HACs (i.e., the 2002 HALs and HACs). No HALs or HACs presently exist on SR 532.

As noted earlier in Table 3-1, a westbound right-turn lane was constructed at the intersection of SR 532/88th Avenue Northwest in 1999 in response to a 1998 HAL designation for MP 4.82 to MP 5.05.

## 4.3 EXISTING DEFICIENCIES (SAFETY, ALIGNMENT, CAPACITY)

Existing corridor deficiencies include safety, operational, and capacity deficiencies. Planned improvements and additional potential improvements and strategies are presented in the following chapter, including widening SR 532, adding traffic signals and/or turn lanes at selected intersections, restricting turn movements at other locations, and promoting measures to reduce local trips on SR 532.

***Safety Deficiencies*** include Hazardous Accident Locations (HALs) and High Accident Corridors (HACs). As discussed in the previous section, no HALs or HACs exist on SR 532.

***Physical and Operational Deficiencies*** identified include substandard shoulder width; inadequate vertical clearance at the I-5 southbound overcrossing; structural deficiencies due to high chloride content on the corridor's bridges; deteriorating sidewalks in the city of Stanwood; lack of curb, gutter, and sidewalk throughout the urban portion of the corridor; and obstructed or limited sight distance in sections on Camano Island. These deficiencies represent potential safety concerns only, as there are no current HAC or HAL locations in the SR 532 corridor.

***Capacity Deficiencies*** exist throughout the corridor. Using the new WSDOT travel delay methodology, existing ACR values exceed thresholds in Island County, Snohomish County, and the city of Stanwood. Local jurisdictions along the route also use intersection level of service standards to evaluate traffic operational deficiencies. Analysis of existing PM peak-hour intersection turning movements revealed 13 intersections operating at LOS E or LOS F, including two signalized intersections and 11 unsignalized intersections. LOS E and LOS F are considered by local jurisdictions to represent deficient operations. Measures addressing both ACR and LOS deficiencies are addressed in the following chapter.

## 4.4 PROJECTED FUTURE TRAFFIC CONDITIONS

Future traffic growth factors were developed by WSDOT based on historical traffic growth, land-use development trends, and 2022 forecasts from the Snohomish County and WSDOT Mt. Baker Area Island County travel-demand forecasting models. A 2022 horizon year was selected for consistency with these existing regional models.

Projected 2022 traffic in the SR 532 corridor was estimated to be about 60 percent higher than existing traffic, a 2.25 percent annual growth rate over the 21-year period from 2001 to 2022. Existing PM peak-hour turning movements were increased by 60 percent to develop the 2022 baseline PM peak-hour volumes shown in Figure 4-2. The 60 percent growth factor may be conservative for some side streets where turning movements are not likely to increase as much due to a lower expected level of development. However, existing volumes on these side streets are generally low. Adjusting the growth factor for the side streets would be unlikely to affect future traffic conditions as measured by intersection LOS or corridor ACR.

Analysis of the corridor's projected 2022 daily volumes was performed using WSDOT's new travel delay methodology. As mentioned earlier, the ACR methodology is required for highways of statewide significance (HSS), but not for highways of regional significance (non-HSS highways) such as SR 532. However, ACR analysis was conducted to facilitate a comparison and for purposes of consistency with the *Island County Comprehensive Plan*. ACR results for 2022 No Build conditions were as follows:

- 2022 No Build ACR = 15.22 in Island County versus ACR standard of 10.0 and existing ACR of 10.86.

- 2022 No Build ACR ranging from 14.31 to 19.09 within the Stanwood city limits versus ACR standard of 6.0 and existing ACR ranging from 7.37 to 11.93.

- 2022 No Build ACR = 13.18 in Snohomish County versus ACR standard of 6.0 and existing ACR of 8.23.

The highway fails to meet ACR standards today. Without any improvements, by 2022 it is projected to be more than twice the standard and over three times the standard within the Stanwood city limits. Potential long-term improvements to address these deficiencies, discussed in the following chapter, include widening SR 532 to two lanes in each direction (plus turn lanes at intersections). With these improvements in place, projected ACR values would be close to the standard:

- 2022 Build ACR = 7.61 in Island County (meets ACR standard of 10.0).

- 2022 Build ACR ranging from 6.08 to 7.98 within the Stanwood city limits (exceeds ACR standard of 6.0 by 1 to 33 percent).

- 2022 Build ACR = 6.59 in Snohomish County (less than 10 percent over ACR standard of 6.0).

An intersection level of service analysis also was conducted using projected 2022 No Build PM peak-hour intersection turning movements. Table 4-5 compares existing and 2022 PM peak-hour levels of service at the intersections analyzed for the RDP. All but one of the intersections is projected to operate at LOS F under 2022 No Build conditions. Extremely long delays would be expected at all three signalized intersections and most unsignalized side streets. The only intersection not projected to operate at LOS F under 2022 No Build conditions is SR 532/36th Avenue Northwest, where side street volumes account for about 1 percent of the total intersection volume. At other unsignalized intersections, side street volumes as a percentage of total intersection volume range from less than 1 percent at Hanstad Road and Heichel Road, to 13 percent at Old SR 99 North and 102nd Avenue Northwest. Levels of service for left turns from SR 532 remain at LOS D or better with projected 2022 volumes.

The following chapter outlines potential interim and long-term improvements and strategies addressing WSDOT's highway level of service standards. Potential route improvements for transit service and non-motorized travel are also discussed.

Figure 4-2 Future 2022 PM Peak Hour Turning Movements

**Table 4-5. 2001 Existing/2022 No Build PM Peak Hour Level-of-Service Summary**

| Intersection Information | | | | | 2001 PM Peak Hour | | 2022 PM Peak Hour | |
|---|---|---|---|---|---|---|---|---|
| Map ID | MP | North-South Street | East-West Street | Type of Control | LOS | Delay (sec/vehicle) | LOS | Delay (sec/vehicle) |
| a | 0.00 | Sunrise Boulevard | East Camano Drive | NB-SB Stop | F | 55.8 | F | [a] |
| b | 0.57 | Hanstad Road | SR 532 | SB Stop | C | 16.7 | F | [a] |
| c | 0.82 | Heichel Road | SR 532 | SB Stop | D | 28.5 | F | 161.2 |
| d | 1.10 | Fox Trot Way | SR 532 | NB Stop | F | 76.0 | F | [a] |
| e | 1.34 | Juniper Beach Road | SR 532 | NB-SB Stop | F | 95.7 | F | [a] |
| f | 1.85 | Good Road | SR 532 | NB-SB Stop | F | 267.3 | F | [a] |
| g | 2.38 | Smith Road | SR 532 | NB-SB Stop | F | 84.7 | F | [a] |
| h | 4.03 | 102nd Avenue NW | SR 532 | NB-SB Stop | F | 197.1 | F | [a] |
| I | 4.11 | Camano Street | SR 532 | SB Stop | E | 45.0 | F | [a] |
| j | 4.25 | 98th Drive NW | SR 532 | NB-SB Stop | F | 67.4 | F | [a] |
| k | 4.90 | 88th Avenue NW | SR 532 | Signalized | D | 41.8 | F | 213.6 |
| l | 5.25 | Pioneer Highway | SR 532 | Signalized | E | 66.0 | F | 390.9 |
| m | 5.90 | 72nd Avenue NW | SR 532 | Signalized | E | 70.2 | F | 258.8 |
| n | 6.45 | 64th Avenue NW | SR 532 | NB-SB Stop | D | 34.5 | F | 298.2 |
| o | 8.22 | 36th Avenue NW | SR 532 | NB-SB Stop | B | 12.0 | D | 26.4 |
| p | 8.74 | 28th Avenue NW | SR 532 | NB-SB Stop | E | 44.0 | F | [a] |
| q | 9.79 | 12th Avenue NW | SR 532 | SB Stop | D | 33.1 | F | 305.0 |
| r | 9.94 | Old SR 99 | SR 532 | NB-SB Stop | F | 115.8 | F | [a] |
| s | 10.02 | I-5 SB Ramps | SR 532 | SB Stop | C | 23.9 | F | 245.1 |
| t | 10.04 | I-5 NB Ramps | SR 532 | All-Way Stop | F | 76.5 | F | 348.1 |

[a] Calculated delay exceeds 999.9 seconds/vehicle

Note: MP = Milepost, NB = Northbound, SB = Southbound, NW = Northwest

# 5. ROUTE IMPROVEMENTS

## 5.1 INTRODUCTION

This section addresses currently planned improvements, including those already identified in this document for SR 532, additional interim and long-term improvements recommended as a result of this analysis, and implementation strategies.

## 5.2 SR 532 ROUTE DEVELOPMENT PLAN POTENTIAL IMPROVEMENTS

Improvements and strategies identified through the Route Development Plan process become eligible for inclusion in the Highway System Plan (HSP). The HSP is the element of Washington's Transportation Plan (WTP) that addresses the needs of the State's highway system. The HSP is a comprehensive assessment of current safety and capacity deficiencies and conceptual solutions for the State's highway system for the next 20 years.

The WTP is a statewide transportation needs assessment that will provide decision-makers with valuable information when making strategic investment decisions. The WTP includes state-owned transportation facilities as well as facilities that the State does not directly control but has an interest in due to their potential effect on the overall transportation system performance.

### 5.2.1 SR 532 Currently Programmed (Committed) Improvements

This section describes short-term committed improvements scheduled to be implemented by WSDOT, Island County, or the City of Stanwood.

The WSDOT Northwest Region has the following programmed improvements on SR 532 scheduled for implementation. Programmed improvements are short-term improvements for which funding is already committed.

- Terry's Corner Realignment/Signalization, MP 0.00–0.30 – This project will close North Camano Drive at the intersection with SR 532 to eastbound traffic, redirecting eastbound vehicles to SR 532 via the Sunrise Boulevard/East Camano Drive intersection, which will be channelized and signalized when traffic signal warrants are met. There will be no changes to westbound traffic. The intersection is presently ranked extremely low on the NW Region's Signal Priority List (SPL), but the SPL ranking is expected to change with redirection of traffic from North Camano Drive. Construction is scheduled for 2002.

- SR 532/Stillaguamish River Bridge, MP 3.39 to 3.48. This maintenance project includes painting and resetting bridge rocker bearings and is scheduled for completion in 2001.

- SR 532/102nd Avenue Intersection, MP 4.03. Design of this channelization and signalization project was completed in 2001, and construction is scheduled for 2003.

- I-5 northbound ramps/SR 532 (SR 532 MP 10.04, I-5 MP 212.35). This project will replace the existing stop-controlled ramp terminal intersection with a roundabout. The project is scheduled to go to bid for construction in November 2002, with construction scheduled for 2003.

In conjunction with WSDOT's programmed Terry's Corner realignment improvements, Island County is designing a park-and-ride lot at the eastern end of the project in the area bounded by North Camano Drive/East Camano Drive/Sunrise. The new park-and-ride lot is intended to serve the growing Camano Island population and to address excess demand at the existing park-and-ride lot at I-5. The lot will be operated by Island Transit, with 80 parking spaces initially, and expansion to 320 spaces planned.

The City of Stanwood, in conjunction with WSDOT, developed an interim channelization improvement to provide a two-way, left-turn lane between 98th Drive Northwest and Camano Street.

### 5.2.2 Recommended Corridor Right-of-Way

A 150-foot ROW is recommended as the standard for corridor preservation to accommodate travel lanes, turn lanes, shoulders, and clear zones in the ultimate cross-section. While the ultimate ROW is recommended to accommodate the long-term requirements for SR 532, securing ROW is an ongoing process that should be considered an interim measure. Proposed land developments or land divisions with highway frontage should be required by local jurisdictions to provide proportional ROW dedication and/or setbacks consistent with the 150-foot overall ROW standard. Within the city of Stanwood, a 100-foot ROW is acceptable.

### 5.2.3 Additional Potential Interim Improvements and Strategies

This section lists additional potential interim improvements developed through field reconnaissance, analysis of existing and future traffic volumes and intersection operations, review of accident data, and stakeholder input. In addition to the counties, the City of Stanwood, and WSDOT, stakeholders in the SR 532 planning process include residents, business owners, agriculture, heavy industry, and recreational users. The recommendations in this report strive to accommodate all of the stakeholders by promoting a broad range of benefits and minimizing the inconvenience to any particular stakeholder or group. However, no solution is likely to be ideal for all of SR 532 stakeholders.

Interim improvements described in this section support the long-term improvements described in the following section, and represent progress toward satisfaction of applicable ACR and level of service standards. However, the improvements have not been analyzed in detail to determine whether all applicable standards would be met.

Interim recommendations are summarized below with specific potential improvements listed by corridor segment in Tables 5-1 through 5-3 (pp. 5-7 through 5-9). Figure 5-1 (p. 5-5) shows the location of interim improvements listed in the tables. While it is unlikely that all the interim recommendations could be implemented within the 5- to 15-year timeframe used to identify the need for interim improvements, they all address conditions that exist now or are projected to exist within the near future.

- Implement interim improvements to improve traffic operations, including adding or lengthening turn lanes at selected intersections, and eliminating left turns at certain other intersections.

- Install new traffic signals at selected intersections once traffic signal warrants are satisfied.

- Upon installation of the planned traffic signal at 102nd Avenue/SR 532, implement coordinated signal timing from 102nd Avenue to 72nd Avenue. Preliminary assessment of projected volumes and signal spacing indicates that coordinated signal timing would be justified in this segment. Until the ultimate section for SR 532 is provided and conduit can be laid for signal interconnect, time-based coordination should be used.

- Eliminate access at selected low-volume side streets listed in Tables 5-1 through 5-3, where feasible alternative access routes exist or can be feasibly implemented through local agency permitting in conjunction with development applications, or through other cooperative efforts between the state and local jurisdictions.

- Extend 92nd Avenue to intersect 88th Avenue in central Stanwood, as planned by the City. The extension would not meet existing access control standards for SR 532 within the city of Stanwood. To facilitate the extension, WSDOT will either need to modify access control standards within the City or permit a variation to access spacing standards. As part of the extension of 92nd Avenue, the existing traffic signal at 88th Avenue should be relocated to 92nd Avenue, and east/west local street connectivity on both sides of SR 532 between 88th Avenue and 92nd Avenue should be improved. Relocating the existing 88th Avenue traffic signal to 92nd Avenue would improve traffic signal spacing along SR 532.

- In coordination with local jurisdictions, improve the local street system to reduce reliance on SR 532 for local circulation, particularly within the Stanwood city limits.

- Construct climbing lanes in strategic locations as an initial step toward the ultimate cross-section. An initial conceptual assessment of potential climbing lane locations was conducted for this RDP. Two potential eastbound segments were identified: 1) west of Pioneer Highway from MP 5.27 to MP 5.60, and 2) MP 6.85 to 7.85. In the westbound direction, one potential location was identified, from MP 9.75 to MP 8.95. All distances are approximate and would require further engineering analysis to evaluate climbing lane warrants and identify design parameters.

- Widen shoulders to full design standards (8-foot shoulders) in conjunction with pavement overlay projects to accommodate and promote bicycle and pedestrian travel, and facilitate oversize agricultural vehicle traffic. Shoulder improvements should initially focus on the corridor segment west of 72nd Avenue in Stanwood. Within the Stanwood city limits, 4-foot bikeways with sidewalks are recommended instead of 8-foot shoulders. To accommodate school buses and Island Transit and Community Transit buses, 10-foot shoulders should be provided at bus pullout locations. Ongoing coordination between WSDOT, the school district, and transit agencies will be needed to identify bus pullout locations.

- Consider partnership efforts with the City of Stanwood to promote safe bicycle travel in the corridor both for commuters and recreational bicyclists. Support development of roadside attractions and/or kiosks with maps and other information, such as the location of commercial uses in Stanwood focused on bicyclists and/or tourism.

- Support TDM measures such as carpools and vanpools through cooperative efforts with local jurisdictions and employers. Supportive efforts could include additional signage near existing and proposed park-and-ride lots; postings on city, county, and WSDOT web pages; ads in local newspapers, etc.

- Support increased coordination of transit service along the SR 532 corridor by Island Transit and Community Transit of Snohomish County. A specific need for commuters is coordinated service to the planned Terry's Corner park-and-ride lot, including timed transfers. When the Terry's Corner park-and-ride lot opens, Community Transit should serve the new Terry's Corner park-and-ride, or Island Transit should serve both the Terry's Corner and the I-5/SR 99 park-and-rides, or the two agencies could combine park-and-ride service. Currently, there is no plan to

coordinate Community Transit commuter service with the Terry's Corner park-and-ride lot. Coordinated service will be essential to fully utilize the new park-and-ride lot.

- Promote access management throughout the corridor. Frequent driveways and side street intersections increase the number of conflicting traffic movements, which increases accident potential and reduces roadway capacity. Access management techniques and strategies can be used to increase capacity and improve safety using low-cost improvements, at the same time avoiding or delaying costly, high-impact items like new or widened highways. Improved access management can generate secondary benefits by improving property values of highway frontage. Joint local/state efforts are needed to implement access management improvements. Potential access management measures focusing on access consolidation and driveway closure are included in Tables 5-1 through 5-3 for the area from the western Stanwood city limits to Pioneer Highway. Access management measures affecting turning movements currently allowed must be sensitive to the users and types of vehicles affected, particularly with respect to access for trucks and agricultural vehicles.

Tables 5-1 through 5-3 list potential interim improvements for Island County, the city of Stanwood, and Snohomish County. Potential improvements were identified considering field observations, intersection and corridor segment operating conditions, stakeholder input, and accident history.

Potential benefits similarly encompass a range of safety, operational, and capacity enhancements. Detailed benefit/cost analysis should be conducted as part of preliminary engineering prior to implementing specific improvements. Preliminary engineering should include further study for locations where side street turning movements are proposed to be restricted or eliminated, to ensure that the demand for the affected turning movements can be accommodated through alternate routes or by other improvements that would be implemented simultaneously.

### 5.2.4 Recommended Long-Term Improvements and Ultimate Cross-Sections

Figure 5-2 (p. 5-6) illustrates recommended ultimate cross-sections for the four general segments of the corridor, including the access-controlled segment in Snohomish County. The only recommended long-term physical improvement is to widen SR 532 to two lanes in each direction (plus turning lanes at selected intersections), which would be necessary to accommodate projected 2022 traffic volumes. With these long-term improvements in place, projected ACR values would be close to the standard:

- 2022 Build ACR = 7.61 in Island County (meets ACR standard of 10.0).
- 2022 Build ACR ranging from 6.08 to 7.98 within the Stanwood city limits (exceeds ACR standard of 6.0 by 1 to 33 percent).
- 2022 Build ACR = 6.59 in Snohomish County (exceeds ACR standard of 6.0 by less than 10 percent).

Figure 5-1 Location of Interim Improvements

Figure 5-2 Recommended Ultimate Cross-Sections

**Table 5-1. Potential Interim Improvements, Island County (Stanwood City Limits to Terry's Corner)**

| Map Number | Milepost | Location | Recommended Interim Improvement |
|---|---|---|---|
| I-1 | 0.00 | Sunrise Boulevard | Signalize as part of programmed improvements. |
| I-2 | 0.57 | Hanstad Road | Cut hillside away to improve stopping sight distance. |
| | | | Add eastbound left-turn lane. |
| I-3 | 1.10 | Fox Trot Way | Modify Camano Marine Shop parking lot driveway to align with Fox Trot Way. |
| I-4 | 1.34 | Juniper Beach Road/Rekdal Road | Install eastbound, westbound left-turn lanes. |
| I-5 | 1.85 | Good Road | Improve eastbound acceleration lane. |
| | | | Add south leg, connect to Juniper Beach Road. |
| | | | Signalize (when warranted) and provide U-turn to serve driveways to east and west. |
| I-6 | 2.38 | Smith Road | Spot intersection improvements. |
| I-7 | 2.38–2.90 | Driveways between Davis Slough and Smith Road | Make north leg southbound right-in, right-out only during peak times. |
| I-8 | 0.00–2.90 | All driveways and roads | Provide U-turns at Good Road, Sunrise Boulevard, and other locations. |
| | | | County to craft a policy requiring properties with SR 532 frontage to provide side street access and connect to SR 532 at focused, desirable locations. |

**Table 5-2. Potential Interim Improvements, Stanwood City Limits**

| Map Number | Milepost | Location | Recommended Interim Improvement |
|---|---|---|---|
| St-1 | 3.86–4.09 | Camano Street to 104th Avenue | Consolidate access along SR 532.<br>Install landscaped median. |
| St-2 | 3.86–3.97 | 102nd Avenue/103rd Avenue/ 104th Avenue and SR 532 | Close 103rd Avenue or make 103rd Avenue right-out only.<br>Improve local circulation north of SR 532 with improvements to 271st Avenue and 268th Avenue, reducing the need for local trips to use SR 532. |
| St-3 | 4.03 | 102nd Avenue | Signalize intersection (currently under design).<br>Analyze Twin City Foods entrance; engineering study needed. |
| St-4 | 4.11 | Camano Street | Restripe intersection or convert to one-way northbound traffic on Camano Street. |
| St-5 | 4.25 | 98th Avenue/SR 532 | Make north leg right-in, right-out or close north leg.<br>Make south leg right-out only, add westbound left-turn pocket, or make south leg right-in, right-out, (no westbound lefts).<br>Add eastbound left-turn lane. |
| St-6 | 4.90 | 88th Avenue/SR 532 | Make north/south legs right-in, right-out, eliminate signal, and add new signalized access at 92nd Avenue.<br>Extend 267th Avenue to 92nd Avenue and connect 92nd Avenue to SR 532.<br>Add frontage road from 88th Avenue and 92nd Avenue through existing parking lots, 1 block north of SR 532. |
| St-7 | 5.25 | Pioneer Highway/SR 532 | Spot intersection improvements. |
| St-8 | 5.90 | 72nd Avenue/SR 532 | Realign 268th Avenue away from 72nd Avenue/SR 532 and add right-turn lanes at the intersection. |
| St-9 | 3.80–6.16<br>4.03–5.90 | Stanwood City Limits | Improve local connectivity to redirect traffic to alternate routes for local trips.<br>Implement coordinated traffic signal timing (72nd Avenue to 102nd Avenue) following signalization of 102nd Avenue/SR 532 intersection. |

**Table 5-3. Potential Interim Improvements, Snohomish County (I-5 to Stanwood City Limits)**

| Map Number | Milepost | Location | Recommended Interim Improvement |
|---|---|---|---|
| Sn-1 | 3.29–3.63 | 270th Avenue/Saratoga Road/ Eide Road | Restrict westbound lefts at Eide Road.<br>No new access (keep as existing). |
| Sn-2 | 3.39–3.48 | Mark Clark Bridge | Retrofit bridge to applicable standards.<br>Improve Camano Island-to-Stanwood Transit. |
| Sn-3 | 6.45 | 64th Avenue/SR532 | Convert north/south approaches to right-out only. |
| Sn-4 | 6.84 | Driveway between Sand-Gravel/ 64th Avenue | Convert driveway to right-in, right-out. |
| Sn-5 | 7.21 | Sand-Gravel Driveway/SR532 | Lengthen southbound left-turn lane to accommodate trucks.<br>Provide westbound U-turn or jug handle for driveway to east. |
| Sn-6 | 7.66 | Driveway between 36th Avenue/ Sand-Gravel | Convert driveway to right-in, right-out. |
| Sn-7 | 8.22 | 36th Avenue/SR532 | Close north/south legs, install signal at 28th (when warranted).<br>Connect 256th between 36th and 28th. |
| Sn-8 | 8.74 | 28th Avenue/Sunday Lake Road/ SR532 | Add/improve turning pockets for northbound, westbound lefts.<br>Other operational improvements by Snohomish County to north (28th Avenue) and south legs (Sunday Lake Road) of intersection.<br>Install signal (when warranted), upon closure of 36th. |
| Sn-9 | 9.31 | Driveway between 12thAvenue/28thAvenue | Add westbound left-turn pocket.<br>Add acceleration lane for northbound lefts or make south leg right-out only.<br>Add frontage road and access to Sunday Lake Road, eliminate driveway access to SR 532. |
| Sn-10 | 9.79 | 12th Avenue/SR532 | Close north leg, make south leg right-out only; use Old 99 for access.<br>Extend 268th to Old 99. |
| Sn-11 | 9.94 | Old 99/SR532 | Add turn pockets.<br>Expand existing park-and-ride lot, add Transit Center.<br>Add signal (when warranted) or roundabout (divert traffic from 12th).<br>Add transit direct access to southbound on-ramp. |
| Sn-12 | 10.02 | I-5 Southbound Ramps/SR532 | Roundabout.<br>Combine Transit Center Access, ramps, and Old SR 99 into one major intersection. |
| Sn-13 | 10.04 | I-5 northbound Ramps/SR532 | Roundabout. |
| Sn-14 | 6.45–10.04 | Miscellaneous driveways/access rights | Purchase of access rights and properties to develop frontage road plan. |

## 5.3 IMPLEMENTATION STRATEGIES

Given that SR 532 is a regionally significant highway, rather than a highway of statewide significance, ongoing interagency cooperation and strategic partnership will be essential to secure competitive funds for implementation of recommended physical improvements and policy changes. This section outlines potential strategies to promote implementation of the recommended improvements and strategies outlined earlier. These implementation recommendations are aimed at promoting interagency consensus that will greatly improve the ability to secure improvements in the SR 532 corridor.

- Continue the efforts of the joint city/county/state advisory committee that met as an advisory group during development of the SR 532 RDP. The committee should meet once or twice a year after more frequent initial meetings to establish the committee's membership, mission, procedures, and responsibilities. The committee should be action-oriented to pursue grant-funding opportunities.

- Estimate improvement costs using planning level cost factors after prioritization of improvement recommendations, or alternatively, as input into the prioritization process. Cost estimates are important ingredients for grant applications and other funding mechanisms.

- Develop criteria to prioritize potential improvements, then apply the criteria to prioritize improvements. The HSP already includes prioritization criteria; however, the SR 532 corridor may be better served by evaluation criteria developed with the specific needs of the route in mind. Potential criteria include factors such as severity of the problem, affected user group, improvement cost, benefit/cost ratio, economic benefit, multi-modal benefit, environmental cost, potential to leverage private ROW or financial participation, potential to leverage grant funding, community acceptance, and other factors.

- Monitor grant programs administered by federal and state agencies, and aggressively pursue grant-funding opportunities. Interagency cooperation typically increases prospects for being awarded grant funding, whether it is a formal or informal evaluation criterion.

- Monitor local land development applications for parcels with frontage onto SR 532 or primary access to SR 532, and coordinate findings and recommendations with local permitting agencies. Ongoing monitoring and interagency coordination are necessary to ensure that proportional mitigation of significant project impacts includes mitigation for impacts to SR 532. This step is also necessary to ensure that implementation of the corridor's recommended 150-foot ROW is established through appropriate ROW dedication and setback requirements.

- Pursue access consolidation and creation of frontage roads or other access alternatives through coordination with local development review processes.

# 6. ENVIRONMENTAL AND ROADSIDE PRESERVATION

## 6.1 SEPA CHECKLIST/ENVIRONMENTAL CONCERNS

A State Environmental Policy Act (SEPA) checklist is included in this document which evaluates the corridor at a programmatic level. The checklist indicates that the development of the RDP is not likely to cause significant, unmitigatable impacts to the environment. Additional environmental analysis will be required for individual project actions.

The portion of SR 532 within Snohomish County is within the Environmental Protection Agency/Department of Energy air quality non-attainment area. Air pollution and noise may be increased as a result of increased traffic on SR 532. However, air pollution emissions generally decrease as a result of increased speeds and lower levels of delay through more roadway capacity, which would result from implementation of potential improvements identified in the previous chapter, particularly the long-term widening of SR 532 to a four-lane cross-section. Future traffic volumes are not anticipated to create unacceptable noise impacts.

## 6.2 ROADSIDE PRESERVATION

Revegetation can be used to provide permanent erosion control of new or existing side slopes affected by construction activity. Vegetation also can provide a transition from highway elements into the community and can be used to provide a visual buffer for manmade features, such as highways, walls, etc. Roadside vegetation can buffer adjacent properties from the highway, and landscaping should be an integral part of any highway construction project wherever it is physically feasible, and wherever it will provide benefit.

Drainage problems exist on the East Hill of Stanwood, partly due to the presence of rock and hardpan clay that tends to allow stormwater to run off too quickly to be absorbed. Improvement plans for SR 532 in this area would include adequate design measures for storm drainage quality and quantity, and any roadway construction would employ best management practices to address drainage issues during construction.

Creeks and wetlands occur throughout the corridor, although they are primarily located south of Stanwood at the northwest end of the Port Susan coast and in smaller pockets in areas near SR 532. Trees, shrubs, persistent emergents, and emergent mosses dominate these nontidal wetlands. The area also contains sensitive areas such as stream corridors, ponds, and other water-related features. Also, the Stillaguamish River Valley, covering much of northwest Snohomish County, contains a floodplain, which extends over portions of SR 532 west of Stanwood. SR 532 floodplain sections are generally built on bridges. Any development, including new or improved roadways, impacting existing wetlands or species listed under the Endangered Species Act (ESA) is subject to federal environmental regulations and permitting requirements.

Any construction near any of the bodies of water close to the corridor, such as the existing bridge or creek crossings, must take extra precautions to ensure that debris is not allowed to enter the waterbody. Any fish-bearing creeks must be protected from significant levels of contaminated runoff from the roadway surface as well as any construction impacts.

# 7. PUBLIC INVOLVEMENT AND CONSISTENCY WITH OTHER PLANS

## 7.1 PUBLIC INVOLVEMENT

A public involvement program was developed for the SR 532 RDP with the overall goal of promoting and providing a variety of meaningful opportunities for Plan stakeholders to communicate with the Plan's Steering Committee and the Project Team. Plan objectives included:

- Disseminating information about the SR 532 RDP to the general public and directly affected communities.
- Identifying stakeholder groups most affected by and interested in possible SR 532 improvements, and actively soliciting their input.
- Providing a variety of opportunities for public participation and involvement throughout the RDP planning process.
- Producing recommendations reflecting public comment that are sensitive to and adequately address issues raised by the SR 532 corridor's multiple stakeholders.

Public involvement actions undertaken for RDP development included three informational newsletters, a Website maintained by WSDOT throughout the study, and two informational open houses. The breadth of activities provided stakeholders and other interested parties with both formal and informal means of providing input. At the open houses, staff from WSDOT, the two counties, the City of Stanwood, and the two transit agencies (Island Transit and Community Transit), as well as the consultant team, presented planned improvements and answered questions from members of the public in attendance. A summary of comments from the public involvement open houses is included in Appendix B.

## 7.2 CONSISTENCY WITH OTHER PLANS

Projected traffic volumes and improvement recommendations in the updated SR 532 Route Development Plan were compared with the current comprehensive plans for Island County, Snohomish County, and the City of Stanwood. Projected 2022 PM peak-hour volumes analyzed in the updated RDP are fairly consistent throughout the corridor, ranging from about 2,400 vehicles at either end of the corridor and through Stanwood, to about 2,150 vehicles from 64th Avenue Northwest to 28th Avenue Northwest. The updated SR 532 Route Development Plan identifies a need for four lanes on SR 532, with additional turning lanes at various intersections. The projected volumes and improvement recommendations in the updated SR 532 Route Development Plan are generally consistent with the Transportation Elements for Island County, Snohomish County, and the City of Stanwood.

Island County's *Final Transportation Plan: 2000 – 2020* (December 2000) identifies four lanes plus left-turn lanes on SR 532 as the only improvement needed on state highways in the county by 2006. A planning level cost of $34 million to $45 million is identified for the segment from East Camano Drive to the county line. The county Transportation Element also projects daily traffic on SR 532 at the county boundary to increase from 15,000 in 1998 to over 29,000 by 2022. Assuming peak-hour volumes to be about 10 percent of average daily traffic (ADT), the projected ADT is very close to volumes analyzed in the updated SR 532 Route Development Plan.

No improvements for SR 532 are included in the *Snohomish County GMA Comprehensive Plan Transportation Element* (December 2000). PM peak hour level of service analysis reported in the Appendix of the Snohomish County document shows LOS F projected by 2022 for the segment from the county boundary to 64th Avenue Northwest, and LOS D from there to I-5. Projected 2022 peak-hour traffic volumes developed from the county's in-house travel demand model are also reported, ranging from 2,409 to 2,662 vehicles west of 64th Avenue Northwest to the county line, and from 1,725 to 1,907 vehicles between 64th Avenue Northwest and I-5. While the projected levels of service are generally consistent with the updated SR 532 RDP, projected PM peak-hour volumes reported in the county Plan for the eastern end of the corridor are slightly less than those analyzed in the updated SR 532 RDP.

The City of Stanwood updated its Comprehensive Plan in January 2001. The Transportation Element of the updated Plan states that a four-lane cross-section would be needed to accommodate future traffic with growth assumptions for 2015. With the existing cross-section, LOS F conditions were projected from 64th Avenue Northwest to Camano Road, improving to LOS E from Camano Road to the city limits

# 8. TRANSPORTATION FINANCING

## 8.1 POTENTIAL TRANSPORTATION IMPROVEMENT FUNDING SOURCES

Legislators and policy makers draw upon a broad array of funding sources to support the transportation system. The Legislature has also given local governments the authority to raise taxes for their own transportation programs, and it has permitted transit agencies to use locally-generated tax revenues to match motor vehicle excise tax revenue.

The most widely used sources for funding transportation improvements to Washington State Highways are summarized below. Projects that may be proposed from the recommendations of this plan will have to compete against other projects for funding. Before being able to compete, each project must be identified in the financially constrained system plan.

As a result of State House Bill 1487 passed during the 1998 legislative session, and since codified into several state laws, the state highway system has been separated into highways of statewide significance (HSS routes) and regionally significant (non-HSS) routes. Highways of statewide significance generally have priority over highways of regional significance for state transportation funding, while partnerships are emphasized for funding improvements on regionally significant state highways. SR 532 has been designated a regionally significant (non-HSS) highway.

### 8.1.1 User Fees

State-collected user fees include gas tax (or fuel tax); vehicle licenses; permits and fees, including vehicle registration fees, combined license fees (gross weight fees), plate fees, oversize and additional tonnage fees, and title fees, ferry fares; and formerly, tolls.

Traditionally, user fees have been the primary means for funding transportation needs. The first state gas tax was imposed in 1921 and vehicle registration fees were first collected in 1915.

The 18th Amendment to the State Constitution (passed in November 1944) specifies that all gas tax and vehicle licenses, permits, and fees be deposited in the Motor Vehicle Fund and be used for highway purposes. Ferries, State Patrol highway activities, Department of Licensing functions, as well as portions of other agencies' budgets (Parks, Department of Agriculture, etc.), have been defined as highway purposes.

About one-third of the 23-cent state gas tax revenue is distributed directly to cities and counties for local road projects and is not subject to appropriation by the Legislature. Local jurisdictions can also receive gas tax revenue through the competitive grant programs administered by the state's County Road Administration Board (CRAB) and Transportation Improvement Board (TIB), which are funded in the transportation budget. CRAB grants are for rural arterials and cannot be used for state routes. TIB funding is usually awarded for urban areas. Many TIB grants reward cooperative efforts among agencies.

### 8.1.2 Motor Vehicle Excise Tax

The Motor Vehicle Excise Tax (MVET) was repealed effective January 1, 2000, with passage of Initiative 695. Prior to that, its rate was 2.2 percent of vehicle value and included nondedicated revenues appropriated by the Legislature for transportation improvements. The State Legislature has not yet addressed the issue of replacing transportation revenue sources lost with repeal of the MVET.

### 8.1.3 Federal Funding

Federal funding comes from the Transportation Equity Act for the 21st Century (TEA-21). TEA-21 provides six years (FFY 1998–2003) of federal funding for highways, bridges, highway safety, mass transportation (including transit, rail, air, ferry systems), transportation enhancements (e.g., bicycle/pedestrian facilities), and environmental issues. TEA-21 revenues come from the federal gas tax, along with taxes on truck and tire sales and taxes on alternative fuels, and are awarded to local jurisdictions through competitive grants. Generally, projects awarded federal funding through TEA-21 grants are funded at the 80 percent level, requiring a 20 percent state match. Some TEA-21 grant programs reward interagency cooperation.

### 8.1.4 Debt Financing (Bonds)

Unlike General Fund debt, highway debt is not subject to statutory limits since capital investments constitute a much higher percent of the transportation budget than the general state budget. Highway debt service is currently about 12 percent of state motor vehicle revenues.

### 8.1.5 Other Funding Sources

Other funding sources with the potential to be incorporated into SR 532 improvements include private sector contributions, in the form of conditions of development levied on private development fronting the highway, and joint county/state or city/state projects.

Traffic impact fees (TIF) imposed on development activity by Snohomish County could be used to partially fund some of the recommended improvements. The county's TIF Program allows TIF revenues from county development to be paid to WSDOT for improvements on state highways. At this time, none of the potential improvements are included in the cost basis for the Snohomish County TIF, or in the interagency TIF agreement between Snohomish County and WSDOT. Adding potential improvements to the county's list of TIF-eligible improvements is a potential implementation strategy addressed under the implementation section (Section 5.3). Neither Island County nor the City of Stanwood assess traffic impact fees.

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# APPENDIX A

## Steering Committee Members and Meeting Minutes

# ROUTE DEVELOPMENT PLAN

## Project Steering Committee Contact List (Voting Members)

| Name | Affiliation |
|---|---|
| Bill Beckman | City of Stanwood |
| Tim Brakke | Community Transit |
| Miguel Gavino | WSDOT – Planning and Policy Office |
| Rick Mitchell | WSDOT – NW Region |
| Tina Rogers | Snohomish County Public Works Department |
| Jerry Schutz | WSDOT – NW Region |
| Dick Snyder | Island County Public Works |
| Casey Stevens | Stillaguamish Tribe |

# APPENDIX B

## Public Meeting Summary of Comments and Responses

# APPENDIX C

## SEPA Checklist

# SEPA CHECKLIST – TRANSPORTATION
# WAC 197-11-960, RCW 43.21C

**14. Transportation**

*a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.*

Public streets under the jurisdiction of Island County, Snohomish County, and the City of Stanwood serve the SR 532 corridor. The characteristics of these streets described and shown geographically in the report include functional classification, lane geometry, intersection traffic control, existing daily and peak-hour volumes, existing and future intersection levels of service, and existing and future operating conditions based on the State's new travel delay methodology.

*b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?*

Two Community Transit Routes, Nos. 422 and 247, currently serve the Stanwood area. Route 422 connects Stanwood to the Marysville and Seattle areas via SR 532 and I-5. It provides a weekday commuter route, with three runs in the morning and three runs in the evening. Route 247 makes a loop through north Stanwood and connects Stanwood to Marysville and Everett. On weekdays it has four runs in the morning and four runs in the evening. Route 247 serves rural Snohomish County and also provides the only public transit link to Camano Island. Within the SR 532 corridor, these routes stop only in Stanwood and at the park-and-ride lot located on SR 532 near the I-5 interchange; there are no transit stops between I-5 and Stanwood.

Island Transit Route No. 3 connects Camano Island and Stanwood. It has ten weekday runs throughout the day. It loops through Stanwood as it travels to and from the island.

Several school buses use SR 532 to serve the Stanwood School District, with many stops along the way.

There are no existing bus pullouts along SR 532 that are paved or marked for bus use.

Community Transit and Island Transit both operate commuter vanpool programs, which are described in greater detail at the end of this section.

*c. How many parking spaces would the completed project have? How many would the project eliminate?*

On-street parking is presently allowed on SR 532 only between the west city limits of Stanwood at MP 3.80 and Camano Street at MP 4.13, where on-street parking is allowed on the wide outside shoulders. On-street parking would not be included in the ultimate five-lane cross-section proposed for this segment of the highway, and on-street parking is not proposed to be added in the other segments of SR 532. The area where on-street parking is presently allowed within the city of Stanwood could accommodate at least 100 cars. However, less than 10 cars were parked in these spaces during mid-day field observations conducted in the spring and early summer of 2001.

*d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).*

To meet projected 2022 travel demand, the updated SR 532 RDP identifies an ultimate cross-section, including two through lanes in each direction with left-turn lanes at selected intersections. Right-turn lanes are also recommended at some locations. Various interim actions are identified that would provide immediate benefit, and are also consistent with an ultimate five-lane section. Interim actions include access management measures affecting existing streets and driveways, new or longer intersection turn lanes, intersection traffic control changes, and selective climbing lane locations. Long-term recommendations focus on providing a second through lane in each direction, together with additional turn lanes at selected intersections. In addition, the plan recommends a number of local street connectivity improvements affecting existing public local streets and/or requiring new public streets. These connectivity improvements, while outside the control of WSDOT, are considered to be interim improvements.

*e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.*

SR 532 passes over the Burlington Northern Santa Fe rail line in east Stanwood, which serves as a key freight and passenger transport corridor for the region. The project also passes over the Davis Slough and Stillaguamish River, which serve recreational water transportation only. The project will not directly affect these facilities, but recommended improvements would occur in the immediate vicinity of both the rail line and the Stillaguamish River. There are no airports in the immediate vicinity of the corridor.

*f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.*

The project by itself would not generate additional vehicle trips, but would carry new vehicle trips generated by development projected to occur throughout the region. The highest traffic volumes during the day in the corridor are and will continue to be during the evening peak hour, roughly 5:00 to 6:00 PM. Peak summertime traffic volumes are about 15 percent higher than average annual traffic volumes. However, the RDP analysis focuses on average annual traffic volumes represented by typical conditions during spring and fall months. Future 2022 PM peak-hour, two-way link volumes projected by WSDOT are expected to remain fairly consistent throughout the corridor, ranging from about 2,700 vehicles per hour just east of Terry's Corner to about 2,560 vehicles per hour just west of the I-5 southbound on-ramps. These projected peak-hour link volumes represent a 60 percent increase over existing 2001 traffic volumes, and correspond to daily traffic volumes of about 25,000 to 27,000 vehicles per day based on a 10 percent peak-hour factor.

*g. Proposed measures to mitigate or reduce or control transportation impacts, if any:*

A series of measures has been developed to mitigate future traffic conditions, ranging from interim spot access management improvements to the recommended long-term configuration of two through lanes in each direction over the length of the corridor by the 2022 horizon year. These mitigation measures were evaluated in the context of WSDOT's ACR standards for SR 532 (the ACR is the performance measure based on the state's new travel delay methodology). Recommended mitigation measures are detailed in this RDP. These mitigation measures satisfy WSDOT's ACR performance standards except in Snohomish County and the city of Stanwood. In Snohomish County, projected 2022 PM peak-hour highway operations (ACR value of 6.59)

exceed the standard (ACR of 6.0 or less) by less than 10 percent. In the city of Stanwood, which has an ACR standard of 6.0, highway performance with the long-term configuration ranges from 6.08 to 7.98 ACR. Intersection level of service standards would not be met at all intersections, mainly due to projected levels of service at unsignalized intersections where left turns onto the highway would continue to be allowed. However, as a whole these measures represent substantial movement toward satisfaction of current level of service standards.

Travel demand management (TDM) measures are also in various stages of development in the corridor. The park-and-ride lot at the eastern corridor terminus served by the No. 422 express bus route recently was expanded from 47 spaces to 102 spaces to accommodate demand. A park-and-ride lot was recently opened in Stanwood east of 88th Avenue, which is also served by the No. 422 express bus. A 320-space park-and-ride lot is planned at the western end of the corridor in Terry's Corner, with the 80-space initial phase scheduled for construction in late 2001. Improved coordination between transit service providers in the corridor is recommended to promote use of the Terry's Corner park-and-ride lot.

In 1999 a market study was conducted of vanpooling in the six-county Puget Sound region (*Puget Sound Regional Vanpool Market Study Draft* Executive *Summary*, October 2000). The study revealed that vanpools operated by Intercity Transit in Island County, and Community Transit in Snohomish County have been very successful to date, with vanpooling in both Counties growing at an average annual rate of 30 percent or more from 1995 to 1999, representing over 40 new vanpools. The study reported that vanpooling could serve up to 25 percent of long-distance commuters with a thorough program of aggressive marketing and incentives. Transit agency staff report that as of 2000, vanpool use already exceeded the 25 percent market share identified in the study.

# APPENDIX D

## Accident Statistics